86689

S/136/60/000/012/009/010
E193/E183

Investigation of Stresses During Extrusion of Ribbed Aluminium Alloy Components

between the calculated and factual magnitude of P was only 21%. The general conclusion reached was that if the magnitude of $S_{d.c}$ and K_{kp} for a given alloy is determined experimentally, the extrusion pressure can be calculated with sufficient accuracy with the aid of formula (1a).
There are 5 figures, 4 tables and 8 Soviet references.

X

Card 7/7

YERMANOK, M.Z.

Statistical determination of the basic parameters on which depends the amount of stress in pipe and wire drawing from certain metals and alloys. Sbor. nauch. trud. GINTSVETMET no.33:331-338 '60. (MIRA 15:3)
(Drawing (Metalwork)) (Nonferrous metals)

18.1285
18.8200

31741
S/136/61/000/012/005/006
E193/E383

AUTHORS: Dontsov, S.N., Yermanok, M.Z., Candidates of Technical Sciences and Chizhov, I.N., Engineer

TITLE: Strength characteristics of titanium alloys and their application in calculating stresses during plastic-working operations

PERIODICAL: Tsvetnyye metally, no. 12, 1961, 74 - 76

TEXT: Lack of experimental data on the resistance of Ti alloys to deformation at various temperatures and deformation rates causes difficulties in designing equipment for plastic-working of these materials and in establishing optimum working schedules. Hence the present investigation, which is concerned with the properties of pure Ti (ВТ1 (VT1)) and Ti alloys (ВТ6 (VT6), ВТ 5 (VT5) and ОТ4). In Fig. 1, the hot tensile strength (σ_B, kg/mm^2) of these materials is plotted against temperature ($^\circ$C). It will be seen that at 1 050 - 1 150 $^\circ$C, i.e. in the hot-working temperature range, σ_B of all four materials is very much the same. These values, however, cannot

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be used as the basis for calculating stresses during hot-working operations because they represent strength of undeformed material, whereas the strength of an alloy near the exit end of the deformation region depends on the deformation (rolling) rate. The effect of strain rate on σ_B of the alloys studied is illustrated in Fig. 2, where σ_B of the alloy VT5 is plotted against test temperature (°C), curves 1-4 relating, respectively, to strain rates of 0.33, 280, 740 and 1 120 %/sec; (similar results were obtained for the alloy VT6). The data presented in Fig. 2 are reproduced in a different manner in Fig. 3, where the so-called strengthening coefficient (c) is plotted against the strain rate (N, %/sec) at temperatures indicated by each curve. If it is assumed that the average resistance of a metal to deformation during rolling, $S_{n.cp}$, is an arithmetical mean of its tensile strength near the entry and exit ends of the deformation region, it can be calculated from the formula:

Strength characteristics of ....

$$S_{д.ср} = \frac{1 + c}{2} \cdot \sigma_{в\,СТАТ} \qquad (2)$$

where $\sigma_{в\,СТАТ}$ is the tensile strength determined by the static test at a given temperature and c is the strengthening coefficient corresponding to a given rolling temperature and speed. If, as has been postulated by Perlin, $\sigma_{д.ср}$ is a geometrical means of $\sigma_{в}$ near the exit and entry ends of the deformation region, Eq. (2) becomes:

$$S_{д.ср} = \sigma_{в\,СТАТ} \cdot \sqrt{c} \qquad (3) .$$

The magnitude of c is independent of the rate of deformation in cold-rolling and the average resistance to deformation in this case is simply

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Strength characteristics of ....

the arithmetical mean of UTS of the alloy before and after rolling. A more accurate value of $S_{д.ср}$ in cold-rolling is given by the formula proposed by M.Z. Yermanok in Ref. 5 (IVUZ, Tsvetnaya metallurgiya, 1959, no. 6):

$$S_{д.ср} = \frac{\sigma_{в\,нач} \cdot F_{нач} \cdot \sigma_{в\,кон} \cdot F_{кон}}{F_{нач} + F_{кон}} \qquad (5)$$

where $\sigma_{в\,нач}$ and $\sigma_{в\,кон}$ denote, respectively, the UTS of the alloy before and after rolling,

$F_{нач}$ and $F_{кон}$ denoting the cross-sectional area of the stock at the entry and exit ends of the deformation region.

Card 4/4

33165

S/136/62/000/002/002/004
E073/E135

10.7200 4016

AUTHORS: Zlotin, L.B., and Yermanok, M.Z.

TITLE: Diagrams for calculating the dependence of the resistance to deformation on the duration and degree of deformation

PERIODICAL: Tsvetnyye metally, 35 no.2, 1962, 66-69

TEXT: A basic parameter for calculating the forces required in metal forming is the resistance to deformation Sd, which is greatly influenced by the degree and duration of the deformation. Experimental investigation of these factors is very difficult; also, no standard high-speed experimental equipment is in existence. Therefore various authors attempted to derive formulae for analytical determination of the resistance to deformation during high-speed deformation. In all these formulae the decisive parameter is the speed of the relative deformation

$$W = \delta/\tau \quad (1)$$

where δ is the relative deformation in fractions of unity,

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Diagrams for calculating the ...

τ is the duration of the deformation in seconds. However, the speed of deformation is not a universal parameter; also, the effects of the degree of deformation and the duration of deformation on S_d are not identical. Published data and results obtained by the authors indicate that the influence of the degree of deformation is high, and that it is advisable to take into consideration separately the influence of the degree and the duration of the deformation. The present authors derived a mathematical expression for the influence of the degree and duration of the deformation based on extensive experimental results obtained on the most widely used heavy nonferrous metals and alloys under a great variety of conditions. The S_d versus τ relations are represented in the form of curves which converge into a single point denoted as the initial resistance to deformation at the given temperature $S_{d.H}$ which is the ultimate strength σ_b determined from static tests. This assumption is based on the following considerations: 1) The yield point does not characterise the resistance to deformation if the deformation

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is predominantly plastic; the force required for plastic stretching or compression is more relevant from this point of view. 2) The real stresses during plastic extension are approximately equal to the strength value and, therefore, it is advisable to use this value as an initial characteristic in the calculations. The authors derived an empirical relation by mathematical statistics methods, using the method of least squares, for determining the coefficients of the sought equation, which is:

$$S_{d.K} = S_{d.H} \cdot a \cdot e^{-b \lg \tau} \qquad (2)$$

where a and b are coefficients which depend on the nature of the material, the temperature and degree of deformation. This equation can be transformed into:

$$\lg \frac{S_{d.K}}{S_{d.H}} = A - B \lg \tau \qquad (3a)$$

Diagrams for calculating the ...

In the coordinates $\lg \frac{S_{d.K}}{S_{d.k}} - \lg \tau$, Eq.(3a) can be represented in the form of straight lines, and from this equation diagrams were plotted which converge into a point and permit the determination of $S_{d.K}$. The results are in good agreement with experiment, the maximum divergence being less than 15%. Analysis of the diagrams plotted in the paper indicates that Eq.(2) reflects the non-identity of the influence of the degree and duration of deformation on the value of S_d. The proposed method was verified by comparison with published experimental results and the agreement was found to be satisfactory. The S_d versus τ diagrams reduce considerably the amount of work involved in calculating the value S_d which is required for force calculation in metal forming processes.
There are 3 figures, 1 table and 11 Soviet-bloc references.

Card 4/4

37536

S/136/62/000/005/001/002
E193/E383

1 1310

AUTHORS: Yermanok, M.Z. and Shcheglov, G.M.

TITLE: Extrusion by the inverted and combined method on presses with limited travel of the container

PERIODICAL: Tsvetnyye metally, 35 no. 5, 1962, 61 - 65

TEXT: When extrusion is used for fabricating aluminium- or magnesium-alloy sections without lubricating the container, much lower extrusion pressures are required if inverted extrusion is employed. The limited travel (200 - 350 mm) of the container in most of the existing extrusion presses narrows considerably the range of applicability of this method. This difficulty, however, can be overcome by using a technique which makes it possible to perform inverted extrusion on presses with limited travel of the container and which is described in the present paper. The technique is demonstrated schematically in Fig. 1. The extrusion billet 5 is inserted into the container and upset (Fig. 1a). The locking wedge is then withdrawn and the die head 9 (with an elongated die-holder 7 and a die 6) is then withdrawn from the container liner 3 ; the billet is

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Extrusion by the inverted ....

then moved forward by the extrusion ram 1 and pressure disc 2 until it becomes flush with the front end of the container liner, the container itself being moved back against its stop (Fig. 1б). The die head is then brought into position and locked, after which the inverted-extrusion operation is carried out (Fig. 1в). As a result of the pressure acting on the billet, the container with the billet advances towards the die head, the die-holder enters the container liner and the metal is extruded through the die. Movement of the container ceases when the entire length of the die-holder has entered the container and this completes the first stage of the operation (Fig. 1г). Further extrusion can be done either by the direct or by the inverted method. In the former case, the entire process will have included both direct and inverted extrusion and can, therefore, be referred to as "combined method of extrusion"; the advantages of this method are demonstrated by data reproduced in Table 1. If the reduction of the extrusion pressure attained by using the combined method is not sufficiently large, the operation, after reaching the stage shown in Fig. 1г, can be

Extrusion by the inverted ....

continued by the inverted method, the consecutive stages of which are shown in Fig. 1d, e and f. The combined extrusion method was tested by using it to fabricate a most difficult type of extruded section, namely, a section comprising three different profiles, which was extruded with the aid of three split dies. The results indicated that the combined method required an extrusion pressure 625 - 750 tons lower than that required for direct extrusion, which means that both longer billets can be used and smaller cross-section profiles can be made by this method. In addition, the lower temperature of the billet makes it possible to increase the extrusion speed from 0.6-0.7 to 1-1.1 m/min, whereby the efficiency of the process is increased. There are 5 figures and 3 tables.

Card 3/5

YERMANOK, M.Z.; SHIPILOVA, L.P.

Mechanical properties of semifinished AMg-6 alloy products.
Metalloved. i term. obr. met. no.10:36-37 O '63. (MIRA 16:10)

ZACHAROV, M.F.; GLEBOV, Yu.P.; YERMAKOK, M.Z.

Pressure conditions in the extrusion of pipe with an arbitrary internal shape. Izv. vys. ucheb. zav.; tsvet. met. 6 no.3:128-136 '63. (MIRA 16:9)

(Extrusion (Metals))

YERMANOK, M.Z., SKOBLOV, L.S.

Effect of geometric factors on pressure conditions in the extrusion of aluminum alloy billets. TSvet. met. 36 no.7:64-71 Jl '63. (MIRA 16:8)

(Aluminum alloys) (Extrusion (Metals))

YERMANOK, M.Z.; SKOBLOV, L.S.

Analyzing formulas for the determination of forces needed for rod extrusion. TSvet. met. 36 no.10:78-80 O '63. (MIRA 16:12)

ACCESSION NR: AP4030670 S/0129/64/000/004/0043/0044

AUTHOR: Yermanok, M. Z.; Tomashevskaya, I. M.

TITLE: Influence of preliminary cold deformation on mechanical properties of alloy D16 in tempered pipes

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 4, 1964, 43-44

TOPIC TAGS: cold rolled pipe, pipe deformation, pipe strength, D16 alloy, cold drawn pipe, tempered pipe

ABSTRACT: Thin walled pipes of D16 alloy made by cold rolling or drawing of a hot forged billet show a degree of deformation from 30-35% to 80-85%, resulting in considerably different mechanical properties. Although this is a very important practical problem, its study has been inadequate. The goal of the authors was to determine the mechanical properties of tempered pipes depending on the degree of deformation prior to tempering. As a result of cold rolling an annealed billet into pipes, their annealing and tempering from 500C in water, the following results were obtained: (1) the wall thickness (1-3 mm) has but little influence on the mechanical properties of D16 alloy pipes; and (2) increasing the rate of cold

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ACCESSION NR: AP4030670

deformation to 70% prior to tempering considerably increases the strength characteristic, and the value of relative elongation corresponds the GOST standard 4773-49. Further increase in deformation does not improve the strength characteristic of pipes. Minimum amounts of preliminary deformation required to reach peak levels of the yield point according to GOST 4773-49 have been established. Orig. art. has 2 figures, no formulas, no tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: MM NO REF SOV: 000 OTHER: 000

Card 2/2

ACCESSION NR: AP4015111 S/0136/64/000/002/0062/0065

AUTHOR: Perlin, I.L.; Glebov, Yu.P.; Yermanok, M.Z.

TITLE: Effect of temperature, degree and rate of deformation on the deformation strength of aluminum alloys.

SOURCE: Tsvetnyye metally, No.2, 1964, 62-65

TOPIC TAGS: aluminum alloy, D16 aluminum alloy, V95 aluminum alloy, AD31 aluminum alloy, deformation strength, deformation rate, deformation temperature, deformation strength temperature function

ABSTRACT: The effect of different temperatures (360, 420, 480C) and various deformation rates (0.19, 0.8, 220 and 880 mm/sec) on the deformation strength S_λ was investigated for D16, V95, and AD31 aluminum alloys. The deformation rate w affects S_δ ; and with increased degree of deformation ψ, the intensity of the growth of S_λ is decreased and in some cases even lowered (for AD31 S_λ is lower at a rate of 14 $sec.^{-1}$ than at 4 $sec.^{-1}$). The curves which show the dependence of S_λ on degree of deformation have a maximum, and it is also shown that

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ACCESSION NR: AP4015111

the degree of deformation depends on temperature and rate of deformation. As temperature increases the maximum on the curve is shifted in the direction of smaller deformation values; and with increasing rate of deformation, it is shifted in the direction of larger deformation values. Working diagrams (fig.1) of the $S_\lambda = f(t°)$ relationship were constructed by extrapolation from experimental data for the 3 temperatures investigated. Curves are also included for the most probable deformation periods encountered in extruding the given alloys. The lower curves $S_{\lambda w}$ show the initial values corresponding to S_λ for ψ = 3-6% and minimum rate of deformation w = 0.03 sec^{-1}. Orig. art. has: 3 figures

ASSOCIATION: None

SUB CODE: ML DATE ACQ: 12Mar64 ENCL: 01

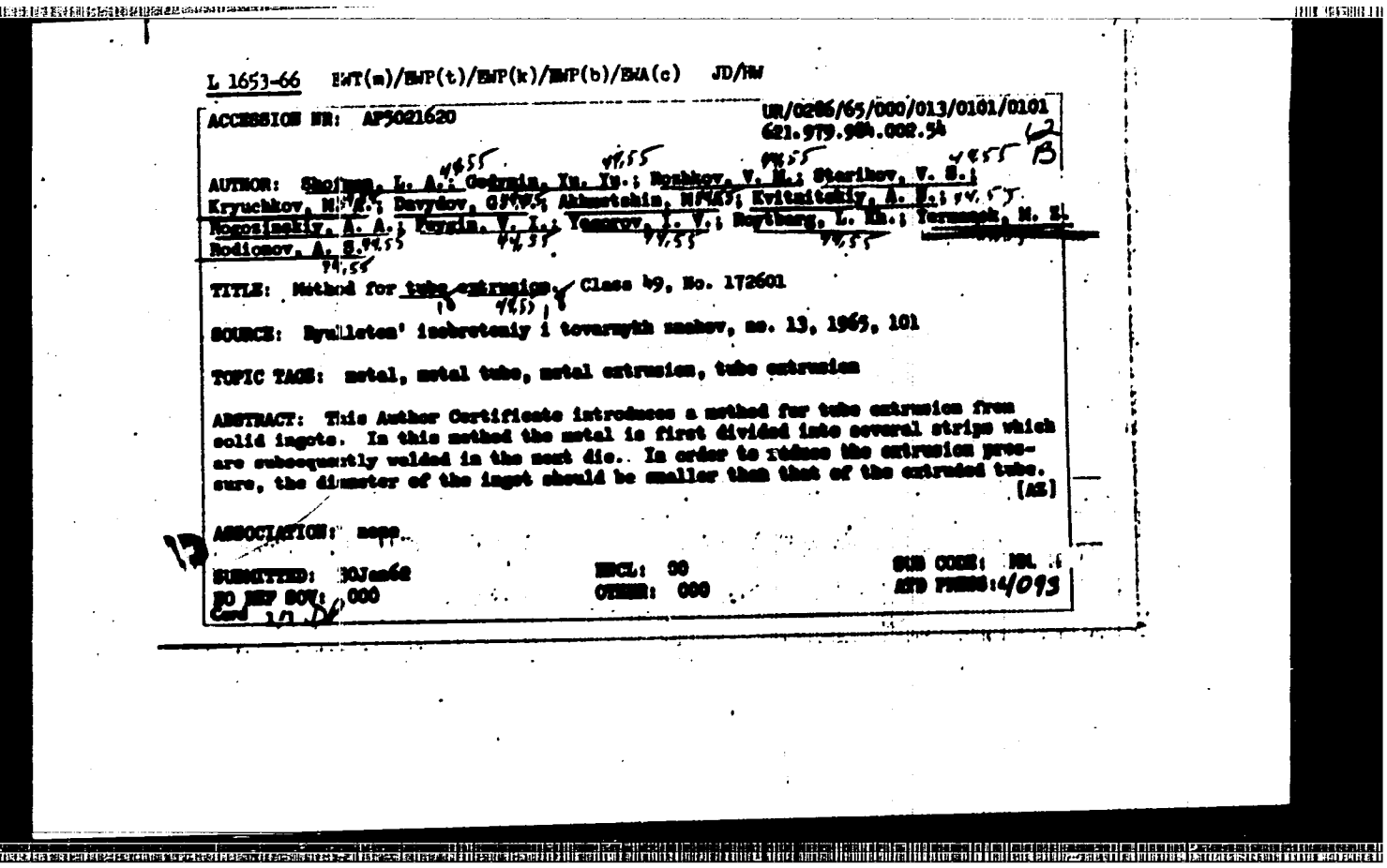
SUBMITTED: 00 NO REF SOV: 009 OTHER: 003

Card 2/2

NOSAL', V.V., prof., doktor tekhn.nauk; VERDEREVSKIY, V.A., kand.tekhn. nauk; TERMANOK, M.Z., kard.tekhn.nauk

Review of a book by Z.A.Koffa and others "Cold rolling of pipe." Stal' 24 no.6:536-537 Je '64. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya (for Nosal', Verderevskiy).



L 1653-66 EWT(m)/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HW

ACCESSION NR: AP5021620 UR/0286/65/000/013/0101/0101
621.979.984.002.54

AUTHOR: Shofman, L. A.; Cherepin, Yu. Yu.; Bychkov, V. M.; Starikov, V. S.; Kryuchkov, N. K.; Davydov, G. S.; Akhmetshin, N. G.; Kvitnitskiy, A. A.; Nogotinskiy, A. A.; Puzyrin, V. I.; Yemanov, I. V.; Roytberg, L. Kh.; Yermanok, M. Z.; Rodionov, A. S.

TITLE: Method for tube extrusion. Class 49, No. 172601

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 101

TOPIC TAGS: metal, metal tube, metal extrusion, tube extrusion

ABSTRACT: This Author Certificate introduces a method for tube extrusion from solid ingots. In this method the metal is first divided into several strips which are subsequently welded in the next die. In order to reduce the extrusion pressure, the diameter of the ingot should be smaller than that of the extruded tube. [AZ]

ASSOCIATION: none

SUBMITTED: 30Jan64 ENCL: 00 SUB CODE: MM
NO REF SOV: 000 OTHER: 000 ATD PRESS: 4093

Card 1/1

L 1655-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)/EWA(c)
JD/HW
ACCESSION NR: AP5021621

UR/0286/65/000/013/0102/0102
621.979.984.002.54

AUTHOR: Shofman, L. A.; Gedymin, Yu. Yu.; Rozhkov, V. M.; Sterikhov, V. E.; Kryuchkov, M. V.; Davydov, G. V.; Akhmatshin, M. A.; Kvitnitskiy, A. B.; Bocharnikov, V. A. A.; Pevgin, V. I.; Yegorov, I. V.; Roytberg, L. Kh.; Yermolok, N. Z.; Rodionov, A. S.

TITLE: Tool for extruding of tubes. Class 49, No. 172602

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 102

TOPIC TAGS: tube, metal tube, tube extrusion, extrusion tool, extrusion press

ABSTRACT: This Author Certificate introduces a tool for the extrusion of tubes from solid ingots, i.e., container, mandrel, welding chamber, and die. In order to increase the rigidity of individual tools and ensure their precise position in relation to one another, thereby improving the accuracy of the extruded tubes, the mandrel is rigidly mounted in relation to the container; it carries an internal die and is provided with a central compartment for the ingot. Radial canals connect this compartment with the welding chamber, which is formed between container wall and the mandrel surface. [AZ]

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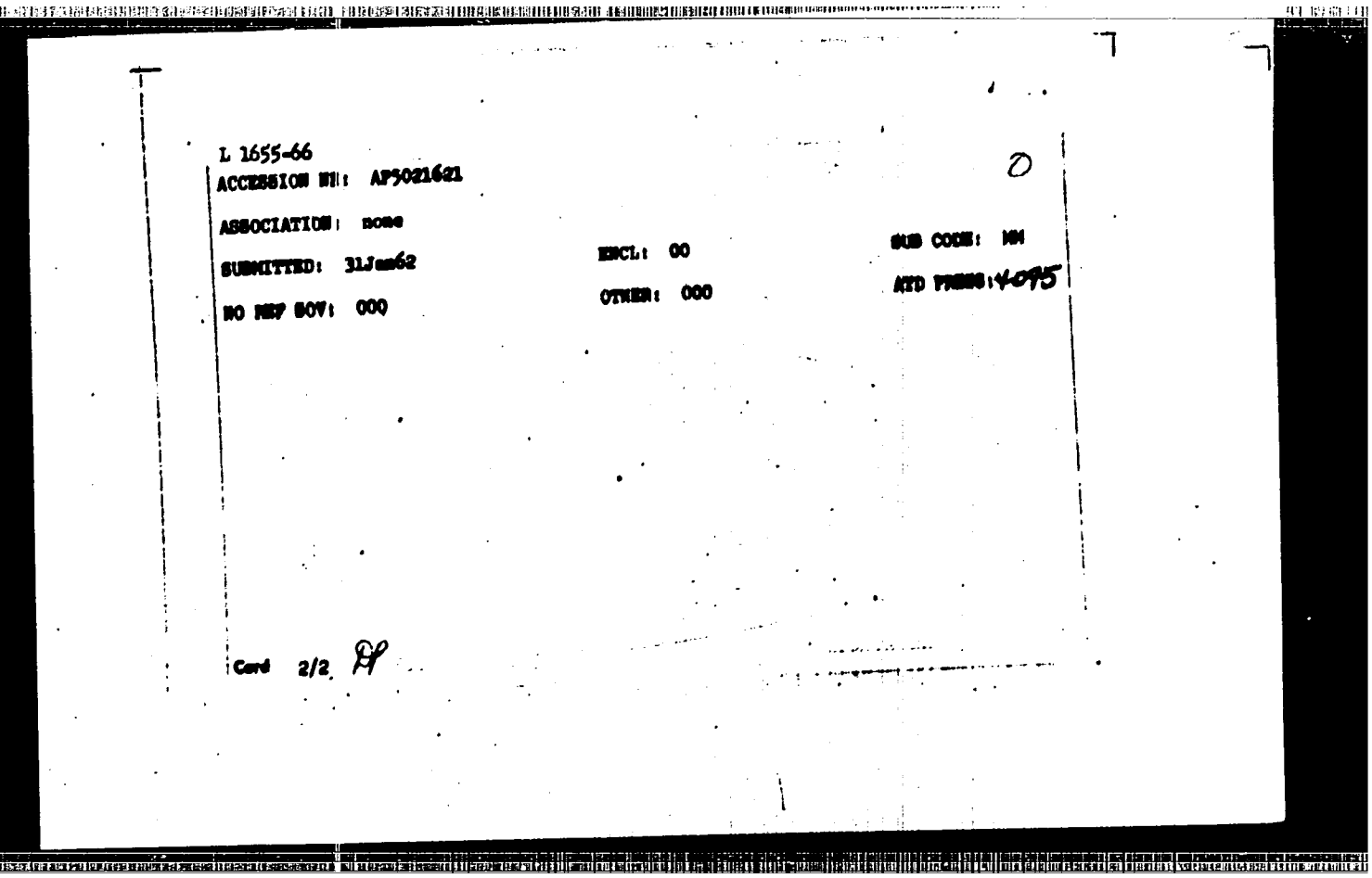

L 1655-66
ACCESSION NR: AP5021621 D

ASSOCIATION: none

SUBMITTED: 31Jan62 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4095

Card 2/2 pf

L 5192-66 EWP(e)/EWT(m)/EPF(c)/EWP(t)/T/EWP(t)/EWP(b)/EWA(h) JD/WW/DJ/WH

ACC NR: AP5024999 SOURCE CODE: UR/0286/65/000/016/0062/0062

AUTHORS: Uvarov, V. Ya.; Glebov, Yu. P.; Zhuravlev, F. V.; Yermanok, M. Z.; Rubin, Yu. L.; Zakharov, M. F.; Kochnova, G. P.; Sukhanova, M. P.

ORG: none

TITLE: Lubricant for heat treatment of metals. Class 23, No. 173869 [announced by the Organization of Mosgorsovnarkhoz (Organizatsiya mosgorsovnarkhoza)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 62

TOPIC TAGS: lubricant, metal heat treatment, mineral oil

ABSTRACT: This Author Certificate presents a mineral oil and graphite lubricant for heat treatment of metals. To prevent metals from sticking to the instrument, talcum and red lead are added to the lubricant. The talcum constitutes 10% by weight of the additive, and the red lead constitutes 8-25% by weight.

SUB CODE: FP/ SUBM DATE: 06Jul64

Card 1/1 UDC: 665.5

YERMANOK, M.Z.

Analysis of formulas for computing thickness changes in pipe walls during drawing without mandrels. TSvet. met. 38 no.6: 66-71 Je '65. (MIRA 18:10)

YERMANOK, M.Z.

Calculating transitions during pipe drawing. TSvet. met. 38 no.11:113-114 N '65. (MIRA 18:11)

GUN, G.Ya.; POLUKHIN, P.I.; PRUDKOVSKIY, B.A.; POLUKHIN, V.P.; [illegible]ERMANOK, M.Z.

Calculating strain hardening and the temperature field during extrusion. Izv. vys. uchob. zav.; tsvet. met. 8 no.4:134-139 '65. (MIRA 18:9)

1. Kafedra tekhnologii i avtomatizatsii prokatnogo proizvodstva Moskovskogo instituta stali i splavov.

L 28860-66 EWP(k)/EWT(m)/T/EWP(t)/ETI IJP(c) JH/DJ/JD/HM

ACC NR: AP6010304 SOURCE CODE: UR/0136/66/000/003/0074/0077

AUTHOR: Yermanok, M. Z.; Skoblov, L. S.; Filina, T. M.

ORG: none

TITLE: Calculation of working stresses during pressing of hollow shapes in dies with built-in core-fin

SOURCE: Tsvetnyye metally, no. 3, 1966, 74-77

TOPIC TAGS: stress analysis, die, metal pressing, metal friction, friction

ABSTRACT: The Al and Mg alloy shapes forged in core-fin dies may be divided into five basic groups (Fig. 1): a, with cylindrical external and internal contours, round tubes; b - with cylindrical external contour and shaped internal contour; c, d - with shaped external contour and cylindrical internal contour; e, f, g, loop type (the area of orifice for these 3 groups of shapes is incommensurably small compared with the cross sectional area of the shape); h, i, j, k, l - with shaped external and internal contours. In this connection, the author corrects the known formulas of pressing stress for the pressing of round tubes in core-fin dies (Perlin, I. L. Teoriya pressovaniya metallov. Izd-vo Metallurgiya, 1964), since Perlin failed to take into account the friction of metal against the die core-fin. Assuming that this fin represents a triangular prism whose sides are friction surfaces, the author derives the

Card 1/3 UDC: 669.2/2.:621.97

L 28860-66
ACC NR: AP6010304

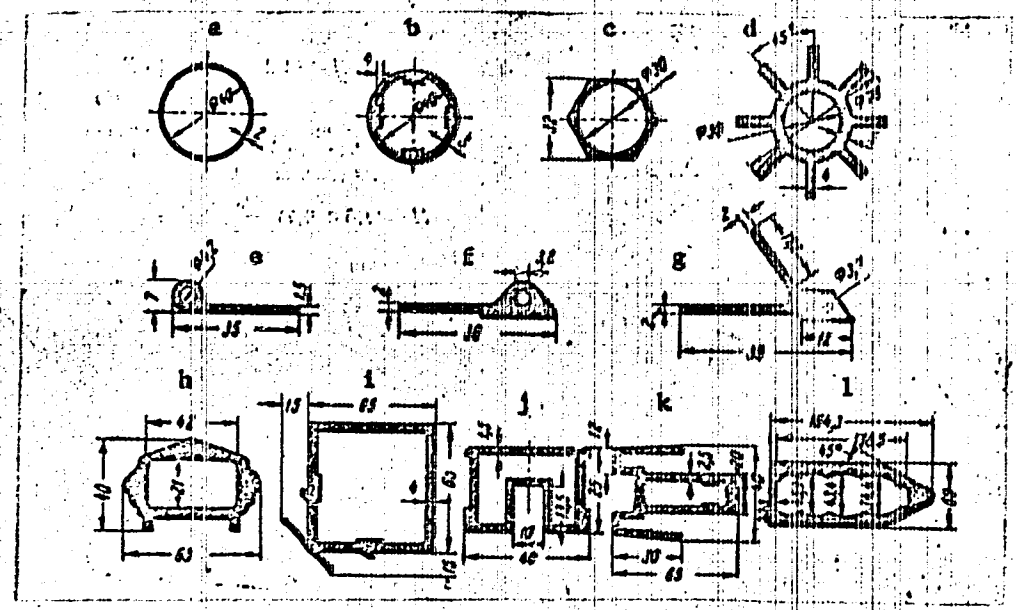

Fig. 1. Basic types of hollow shapes

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ACC NR: AP6010304

formula for friction against the fin:

$$T_{fin} = \frac{0.8D_{o.d.}^2}{\sin\beta}\,\tau_{rp}\int_0^{a_k}\frac{da_x}{0.8D_{o.d.} - a_x};$$

$$T_{fin} = \frac{0.8D_{o.d.}^2}{\sin\beta}\cdot\ln\frac{0.8D_{o.d.}}{0.8D_{o.d.} - a_k}$$

where T_{fin} is friction against the fin, $D_{o.d.}$ is the outside diameter of the forging, τ_{fin} is the mean friction stress at the fin surface. This as well as the other calculation presented shows that, after some corrections, Perlin's formulas may be used for the analytic determination of working stresses during the pressing of hollow shapes in dies with built-in core-fins. Orig. art. has: 2 figures, 9 formulas.

SUB CODE: 11, 13 / SUBM DATE: none

Finned tubes 16

Card 3/3

YERMANOK, M.Z.

Effect of the wall thickness of a blank and steepness of the swell on the reduction magnitude in an instantaneous deformation center. TSvet. met. 37 no.6:59-63 Je '63. (MIRA 17:9)

S/125/60/000/012/004/014
A161/A030

AUTHORS: Brodskiy, A.Ya; Fridman, A.M; Yermanok, Ye.Z; Frolov, S.A.

TITLE: Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 12, pp. 28 - 36

TEXT: The weldability of 30ХГ2С (30KhG2S) reinforcement steel in resistance welding machines has been investigated and practical recommendations are given. The standard composition of this steel (GOST 5058-57) is: 0.26 - 0.35% C; 0.6 - - 0.9% Si; 1.2 - 1.6% Mn; 0.6 - 0.9% Cr; not above 0.3% Ni and Cu (each); the mechanical properties: conditional yield limit $\sigma_{0,2} \geq 60$ kg/mm^2; ultimate strength $\sigma_в \geq 90$ kg/cm^2; elongation $\delta_5 \geq 6\%$; bending angle 45° in cold state around a mandrel with diameter equal to 5 diameters of the tested rod. Rods used for experiments were periodical, with 14 - 28 mm diameter, produced by the Stalino and Magnitogorsk metallurgical works. Round test specimens with sharp notch in different heat affected zones, so-called ЦНИПС(TsNIPS specimens) were used with success first or all with other reinforcement steel, but had to be replaced with Menazhe (Russian transliteration) notch specimens for 30KhG2S because of its very high notch sensitivity. It proved also very sensitive to inaccuracy of connection

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Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

angle in cross connections as well as to burns in machine grips during resistance welding. It is recommended to prevent burns by using electrodes with a wide contact surface, to raise the gripping effort, to carefully clean the surface of electrodes and rods, and to reduce the current density in these spots, which is possible by not only conducting current to the bottom electrodes but also to the upper hold-downs made from copper alloy. In view of the high sensitivity to heating time with butt welding, preheating should be carried out, (not too drastically) - e.g. continuous fusing is not premissible - for chilling in the heat-affected zone reduces strength through the formation of martensite spots (Fig. 3) which affects deformability and thus causes cracks. The formation of martensite can be prevented by heat treatment between the electrodes of resistance welding machines fitted with special automatic devices. [Abstracter's note: No details of such devices are mentioned]. The optimum welding process conditions were found in experiments in an АСИФ-75 (ASIF-75) welder with a recorder which enabled the duration and temperature of preheating, the magnitude of upsetting, the number of preheating cycles, and the total welding time to be determined. The optimum values of the following major parameters were determined: setting length $l_{уст}$,

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A161/A030

Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

fusion length $l_{опл}$, and upsetting length $l_{ос}$, as well as the transformer stage. The optimum process was determined by the shape of the curves of breaking load, bending angle and impact strength in butt joints. For medium-diameter reinforcement rods the $\frac{l_{уст}}{d}$, $\frac{l_{опл}}{d}$ and $\frac{l_{ос}}{d}$ values must be 2.8; 0.7 and 0.35 respectively. Butt joints in 20 and 28 mm diameter rods were so welded in ASIF-75 and MCP-100 (MSR-100) welders. In spot welding of cross joints the weldability of 30KhG2S steel was much lower than of Ст.5 (St.5), and the highest possible mechanical strength was obtained with about 2 sec. holding (St.5 requires three times as much holding). With St.5 rods, spot welded connections can be obtained with mechanical strength not below the strength of the base metal, regardless of the transformer stage, but in 30KhG2S spot welds the strength can drop drastically and be very uneven. The cause is the presence of martensite and heterogeneous structure. The properties of cross joints can appearantly be improved by heat treatment in the welding machine (between electrodes) (Ref. 3) (A. Ya. Brodskiy, P.I. Sokolovskiy. A.M. Fridman, "Avtomaticheskaya svarka", No. 3, 1958). Conclusions: 1) Resistance welding with 30KhG2S reinforcement steel is more difficult than with other Soviet reinforcement steel grades, but butt joints

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A161/A030

Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinfor ed Concrete Structures

are possible with ultimate strength not below the standard minimum for this steel. 2) Smooth Cr.3 (St.3) steel rods can be joined with 30KhG2S rods by spot welding into cross joints without weakening the rods. Cross joints of 30KhG2S with 30KhG2S have not more than 86% of initial metal strength before welding. 3) Brittleness is the drawback of all joints in 30KhG2S steel rods made by resistance welding, but it may be eliminated by heat treatment between electrodes. There are 6 figures and 3 Soviet references.

ASSOCIATIONS: TsNII stroitel'nykh konstruktsiy ASiA SSSR (TsNII of Construction Frameworks AS and A USSR). A.Ya. Brodskiy and A.M. Fridman; NII zhelezobeton pri Mosgorispolkome (Scientific Research Institute for Reinforced Concrete at Moscow City Executive Committee), Ye.Z. Yer-manok: MVTU imeni Baumana (MVTU imeni Bauman), S.A. Emelov

SUBMITTED: March 3, 1960

Card4/4

(IY) L 12911-66 EWI(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HM

ACC NR: AP6000953 SOURCE CODE: UR/0286/65/000/022/0010/0010

44,55 44,55 44,55 44,55

AUTHORS: Yermanok, Ye. Z.; Rodin, I. Z.; Shuvarikov, V. M.; Granovskiy, B. T.

ORG: none

4,44,55 44

TITLE: A method for contact arc welding of T-joints. Class 21, No. 176336 B

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 10

TOPIC TAGS: welding, welding electrode, welding equipment, welding technology, arc welding

ABSTRACT: This Author Certificate presents a method for arc welding T-joints, as between rods and plates. To facilitate the process and to improve the quality of the welded joint, the heading is produced in the course of welding with the help of an electrode provided with a groove.

SUB CODE: 13/ SUBM DATE: 15Jun63

Card 1/1 HW UDC: 621.791.763.1

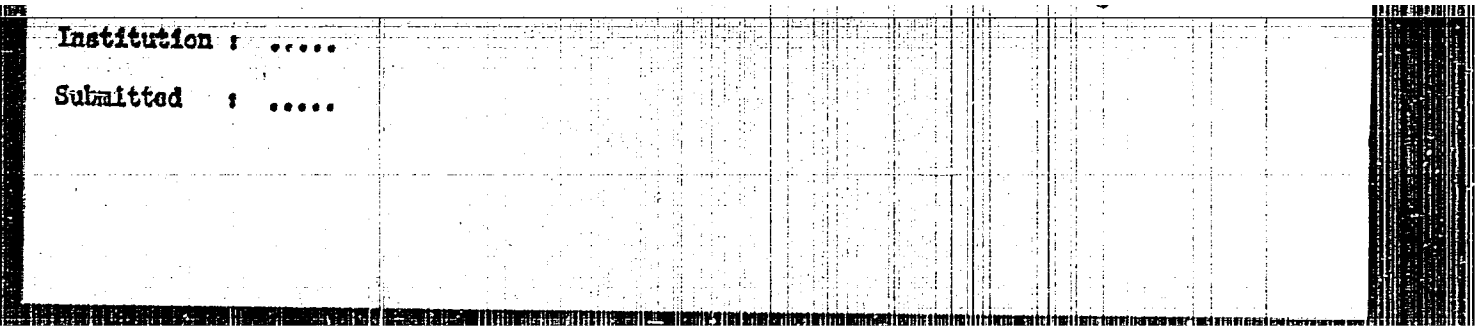
Card 1/1 Pub. 124 - 20/26

Authors : Pogodin, A. S., Eng.; Bulatov, N. I.; Yermanov, B. M., Eng.; and Burkov, V. I., Eng.

Title : Problems dealing with a non-mimeograph method of reproducing drawings

Periodical : Vest. mash. 35/6, 75 - 80, Jun 1955

Abstract : A series of letters submitted to the editor of this publication by readers



18(7) SOV/32-25-4-24/71

AUTHORS: Yermanovich, N. A., Longinov, M. F., Orlov, L. G., Utevskiy, L.M.

TITLE: Examination of Interdendritic Nonmetallic Streaks in Cast Steel (Obnaruzheniye mezhdendritnykh nemetallicheskikh prosloyek v litoy stali)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 440-442 (USSR)

ABSTRACT: Sites of fracture in some structural steels (40 KhNMA, 12Kh2N4A, 30KhVFYu, 30 KhGSA, 30 KhGSNA) pointed to a destruction of the metal along the boundary of the primary grain. On the strength of tests it is assumed that nitrides, especially aluminum nitride (I), accumulate at these boundaries and produce a weakening. This assumption was examined in the present case by means of an electron microscope and an electronograph. By an electrolytic heating, a thin coating layer was obtained at the site of fracture, which could be removed by the reagent according to Popova and examined. On the microphotograph of a fracture in the steel 40 KhNMA (Fig 1) one can well observe the inclusions, the forms of which are represented even better by the electron microscope (Fig 2). The phase composition of these inclusions was investigated by the X-ray structure- and electronographic method. In the X-ray picture (I) was observed in the

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Examination of Interdendritic Nonmetallic Streaks in Cast Steel

steel 38 KhVFYu (I), and (I) and VN in samples with big faults, (I) and $F_3Al_2(SiO_4)_3$ in the steel 12 Kh2N4A - (I), and (I) in the steel 40 KhNMA - (I). The electronograms (Fig 3 for 40KhNMA) corresponded to a crystal lattice of (I). In order to convert structural components from a disperse to a crystalline form, the samples were treated in the vacuum (at 800° for 2 hours); a fine formation of stains (Fig 4) was observed and the distinct electronogram of a polycrystal (Fig 5) was obtained with three phases - a spinel lattice, (I) and a phase which could not be identified. A test storing in the vacuum at room temperature for some days showed a crystallization, the electronogram of which is described (Table). There are 5 figures and 1 table.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod, Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Zlatoust Metallurgical Works, Central Scientific Research Institute of Iron Metallurgy)

18 (7)

AUTHORS: Longinov, M. F., Yermanovich, N. A. SOV/32-25-5-17/56

TITLE: Separation and Analysis of Steel Impurities (Razdeleniye i analiz vklyucheniy v stali)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 5, pp 571-573 (USSR)

ABSTRACT: A method is described, which allows a separation of the steel impurities (I) from the carbides (II) without a chemical treatment of the anode precipitate as well as a separation of (I) in individual phases for the X-ray structural and electronographic analysis. For this purpose the authors comminuted the anode precipitate soaked in alcohol with an electromagnetic vibrator (Fig 1) for 2-3 hours. The (II) whose dispersity is considerably higher remain dispersed and thus can be separated from the deposited (I). The ferromagnetic phase is then separated from (I) with a magnet and the other phases are separated according to the specific weight. The latter may take place mechanically with a special apparatus (Fig 2) on which the interaction between centrifugal force and gravity is made use of. To be true, this method does not allow the separation of (I) having a dispersion degree equal to that of (II). This, however, can be attained by a continuous

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decarbonization of steel up to a low carbon content, in which case the total carbon passes over into the solid solution during hardening of the sample and no (II) is formed. This decarbonization of the sample takes place in a closed tube (Fig 3) which is kept at 1150-1250° during 80-100 hours. In this way sulphides (CuS, MnS), oxides (MgO, Al_2O_3) nitrides (AlN, VN) could be determined in the steel 40 KhNMA. It was proven that at the grain boundaries in the steel 30 KhVFYu nitrides (AlN, VN) having a pink and blue coloring may be found. In steel 12 KhMF large amounts of copper sulphide steel impurities (Fig 4) were found and the angular c ystals observed in steel Kh 17 N 2 were identified as $MgAl_2O_3$ crystals. There are 4 figures.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod (Zlatoust Metallurgical Plant)

S/130/63/000/003/001/001
A006/A101

AUTHORS: Khasin, G. A., Yermanovich, N. A., Pribytkova, K. N.

TITLE: Improving the ductile properties of high-chromium steels

PERIODICAL: Metallurg, no. 3, 1963, 27 - 29

TEXT: The authors studied the effect of hot deformation temperature, cooling methods after rolling, and variants of heat treatment upon the ductile properties of high-chromium steels. Square and round specimens were subjected to the following variants of forging, heat treatment and cooling: preheating for forging from 1,000 - 1,200°C; forging completed at 700 - 940°C; heat treatment at 780 and 900°C during 4 hours; quenching in water and air. It was found that the ductility of steel, determined from the magnitude of contraction after forging, increased with lower forging temperatures. A considerable increase in ductility occurs when the temperature of completed forging is below 800°C. There was no marked difference between the properties of metals, cooled after forging in air, water and cinder. Heat treatment of forged metal at 780°C for 4 hours and cooling in water raises considerably the ductility of the steel and is re-

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S/130/63/000/003/001/001
A006/A101

Improving the ductile properties of high-chromium steels

commended for steels which do not possess the required ductile properties after forging and rolling. Changes in the microstructure, depending upon heat treatment conditions, were studied by heating square steel specimens to temperatures ranging from 700 - 1,100°C with different holding time, and cooling with the furnace, in air or in water. After heat treatment at over 800°C, the ductile properties of the steel remain low; they are normal at 780°C heating for 4 - 5 hours. There are 3 figures and 2 tables.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod (Zlatoust Metallurgical Plant)

Card 2/2

PERLIN, I.L.; OLEBOV, Yu.P.; YERMANYUK, M.Z.

Character of the dependence of the resistance to deformation on the degree of deformation in recrystallization processes following the pressure working of metals. Izv. vys. ucheb. zav.; tsvet. met. 7 no. 4:135-141 '64 (MIRA 19:1)

YERMASHEV, I.

Svet nad Kitayem (Light over China) Moskva, Izd-vo Molodaya Gvardiya, 1950
468 p. illus., ports.

YERMASHEV, I.

Tibet

New book about Tibet ("Tibet". B. V. Yusov. Reviewed by I Yermashev.) Vokrug sveta, no. 8 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1953, Uncl.

YERMASHEV, I.

Truth about new China ("In the country of Mao, Tse-tung." M.Man'ian. Reviewed by I.Ermashev). Vokrud sveta no.1:59-60 Ja '54. (MLRA 7:1)
(China--Description and travel) (Man'ian, M.)

MARKOV, N.M., kand.tekhn.nauk; TERENT'YEV, I.K., kand.tekhn.nauk; YERMASHOV, N.N., insh.

Some results of the experimental study of the effect of steam moisture on the characteristics of turbine stages. Izv. vys. uchseb. zav.; energ. 6 no.3:68-74 Mr '63. (MIRA 16:5)

1. Tsentral'nyy kotloturbinnyy institut imeni I.I.Polzunova. Predstavlena sektsiyey parovykh i gazovykh turbin.
(Steam turbines)

YERMASHOV, N.N., inzh.; MARKOV, N.M., doktor tekhn. nauk, prof.

Development of instruments for determining the degree of steam moisture. Izv. vys. ucheb. zav.; energ. 8 no.8:96-100 Ag '65. (MIRA 18:9)

1. TSentral'nyy kotloturbinnyy institut imeni I.I. Polzunova.

RYABTSEV, N., kand.tekhn.nauk; YERMASHOVA, Ye., inzh.

Using liquefied hydrocarbon gases for compensating daily and seasonal fluctuations and substituting other gases. Zhil.-kom. khoz. 8 no.1:12-15 '58. (MIRA 11:1)
(Gas distribution)

RYABTSEV, N.I.; YEREMASHOVA, Ye.M.

Problems of planning and installing reservoirs for liquefied hydrocarbon gases. Gaz. prom. 4 no.3:30-32 '59. (MIRA 12:5)

(Liquefied petroleum gas--Storage)

66473

SOV/20-129-1-19/64

~~21(8)~~ 5.4500(B)

AUTHORS: Starodubtsev, S. V., Academician, Academy of Sciences, UzbekskayaSSR, Ablyayev, Sh. A., Yermatov, S. Ye.

TITLE: Variation of Adsorptive Properties of Silicagel Under the Action of Gamma-irradiation

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 72 - 73 (USSR)

ABSTRACT: Ionisation and excitation of atoms and molecules as well as displacement of the atoms is caused in solids under the action of penetrating rays. It becomes manifest by an external variation of the mechanical, optical, electrical, physico-chemical, and chemical properties of the bodies. Different preliminary works dealing with this subject are shortly reported. The properties of irradiated silicagel have hitherto been investigated only by A. N. Terenin et al (Refs 6,7). These authors irradiated silicagel by ultraviolet rays and showed, that a process occurs, similar to that on heat treatment, i. e. hydroxyl groups are separated and free valences occur at the surface. Present paper describes the experimental investigation of adsorptive properties,

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Variation of Adsorptive Properties of Silicagel Under the Action of Gamma-irradiation

basing on the adsorption of gases, measured by means of thermocouples and ionization manometers. Experimentally produced silicagels of the type KSK were used for this experiment. Prior to the investigation, these silicagels were subject to careful, long lasting heat treatment, and were then irradiated by γ-rays (dose rate 15.10^4 to 35.10^4 r/hour, total dosage $1.5.10^6$ to 2.10^6 r) in evacuated glas tubes (which were provided with manometer tubes). The following is shown by the results of these investigations: The adsorptive power of silicagel increases remarkably under the influence of γ-rays, and the amount of the gas, adsorbed by the irradiated silicagel increases up to a known boundary value, with increasing irradiation dose. The first diagram shows the change of the adsorptive properties of silicagel with respect to H_2, N_2 and Ar at low pressures, and the second diagram shows the same for CO_2, CO, NH_3, C_2H_4 and H_2S, under the condition, that pressures of $1 - 10^{-1}$ torr prevailed before the irradiation. According to these diagrams, the adsorptive power of the irradiated silicagel samples increases differently for different gases.

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Variation of Adsorptive Properties of Silicagel Under the Action of Gamma-irradiation SOV/20-129-1-19/64

At comparatively high gas pressures (4 torr) the irradiated silicagel can adsorb an amount of hydrogen of $2.5.10^{-5}$ of its total weight. In this experiment, it is important and interesting, that silicagel assumes its previous properties, if heated to 100^{0}. At room temperature, almost no such "annealing" of the irradiation effect may be noticed. Obviously, the changes of the adsorptive properties of silicagel under irradiation with γ-rays may be explained by the separation of hydroxyl groups and the formation of free valences at the surface as well as by the interruption of the bonds between the free radicals (which were formed during the primary heat treatment) and by the high ionization of the gas (the adsorbate), effecting an increase of the adsorptive power of silicagel. There are 3 figures and 7 references, 6 of which are Soviet.

SUBMITTED: June 9, 1959

4

Card 3/3

33100
S/638/61/001/000/025/056
B104/B138

S.4600

AUTHORS: Ablyayev, Sh. A., Yermatov, S. Ye., Starodubtsev, S. V.

TITLE: Variation in adsorption properties of silica gel during gamma irradiation

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy, v. 1. Tashkent, 1961, 174 - 177

TEXT: The adsorption properties of industrial KCK (KSK) silica gel were determined from the amount of gas absorbed, and by measurements with thermocouple and ionization manometers. Before the experiments, the samples were carefully heat-treated, sealed in evacuated ampoules, and exposed to gamma rays. Radiation dose was 150 - 350,000 r/hr reaching a total of up to 2 million r. The adsorption properties of silica gel increase considerably during irradiation, and differ for different gases. Some gases, such as argon or hydrogen sulfide, are hardly adsorbed at all. Amounts of gas additionally adsorbed during irradiation:

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Variation in adsorption...

Gas	Additionally adsorbed gas amount, moles/g
Hydrogen	12
Nitrogen	8
Carbon dioxide	18
Ammonia gas	1
Ethylene	0.5

When the silica gel is heated to 100°C, its properties return to their initial state, i.e. annealing occurs. The increase in adsorption power remains practically constant at room temperature. The lower the temperature (down to -150°C), the more rapid the adsorption process. The adsorption power of silica gel increases with decreasing temperature, but the increase is greater during gamma irradiation. Results are explained as follows: (1) The hydroxyl group is destroyed by irradiation, and free valences are formed; (2) electrically charged active centers are formed; (3) the bonds between free radicals are ruptured. A. N. Terenin et al. (DAN SSSR, 66, 885, 1949) are mentioned. There are 3 figures, 1 table, and 6 references: 5 Soviet and 1 non-Soviet.

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33100
S/638/61/001/000/025/056
B104/B138

Variation in adsorption...

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physicotechnical Institute AS Uzbekskaya SSR)

Card 3/3

S/166/60/000/006/008/008
C111/C222

AUTHORS: Ablyayev, Sh.A., Yermatov, S.Ye. and Starodubtsev, S.V., Academician of the Academy of Sciences Uzbekskaya SSR.

TITLE: The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1960, No. 6, pp. 93 - 95

TEXT: In (Ref. 1) the authors showed that the adsorption properties of silica gel are changed essentially by γ - rays Co^{60}. The present paper is a continuation of (Ref. 1). The authors investigate the adsorption properties of the types КСК(KSK) and АСМ(ASM) of the silica gel and of the alumosilicates. It was stated that the adsorbing capacity of the alumosilicates after a γ - radiation increases somewhat and the adsorbing capacity of the silica gel increases strongly.

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S/166/60/000/006/008/008
C111/C222

The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

Fig. 1

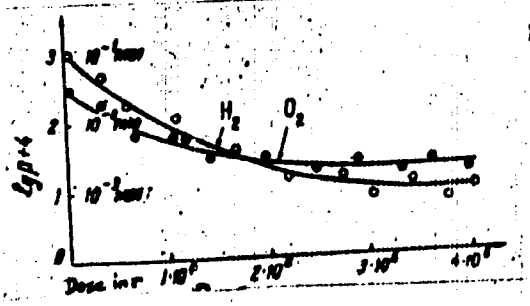

Fig. 1 : Change of the adsorbing capacity of the alumosilicates under the influence of γ - radiation.

Furthermore it was stated that for low temperatures of the tests the adsorption process is quicker.

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S/166/60/000/006/008/008
C111/C222

The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

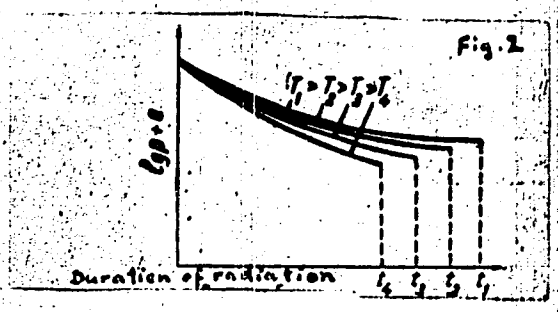

Fig. 2 : Influence of the temperature of the radiation to the velocity of the adsorption process.

The isothermal lines of the adsorption of the considered silica gel were obtained for two gases (H_2 and O_2) for room temperature and for the temperature of fluid nitrogen.
The discovered properties were used in order to construct a thermos bottle
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S/166/60/000/006/008/008
C111/C222

The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

which contained silica gel between the walls and which was submitted to γ- radiation ; thereby it was reached that the velocity of cooling of the content was diminished essentially.
There are 6 figures and 1 Soviet reference.

[Abstracter's note : (Ref. 1) is a paper of the authors in Doklady Akademii nauk SSSR, 1959, Vol. 129, p. 72]

ASSOCIATION: Fiziko-Tekhnicheskiy institut AN Us SSR
(Physicotechnical Institute of the Academy of Sciences Usbekskaya SSR)

SUBMITTED: August 29, 1960

Card 4/4

YERMATOV, S. Ye. CAND PHYS-MATH SCI, "CHANGES IN THE ADSORPTION PROPERTIES OF SILICA GEL UNDER [redacted] GAMMA-RAYS." TASHKENT, 1961. (ACAD SCI UZSSR. PHYS-TECH INSTITUTE). (KL-DV, 11-61, 208).

S/844/62/000/000/119/129
D207/D307

AUTHORS: Starodubtsev, S. V., Ablyayev, Sh. A., Vasil'yeva, Ye. K. and Yermatov, S. Ye.

TITLE: Effect of γ radiation on adsorption properties of silica gels

SOURCE: Trudy II Vsesoyuznogo soveshchaniy po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 689-692

TEXT: Factory-made silica gel of KCK (KSK) grade was heat-treated in evacuated ampoules and then subjected to γ rays at dose rates up to 340,000 r/hour. Adsorption was then investigated by admitting a gas or vapor to the ampoules held at temperatures from +20°C to liquid-nitrogen temperature. On cooling, the adsorption ability of silica gel increased even without irradiation, but γ rays intensified this increase. The amount of oxygen adsorbed rose linearly with pressure of the admitted gas or vapor in unirradiated and irradiated silica gel, indicating the same nature of adsorption cen-

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ters in both cases. The silica gel surface became saturated with adsorption centers at doses of 2 - 3 x 10^6 r. Gamma irradiation raised the amount of heptane vapor that could be adsorbed on silica gel (this effect was smaller than for the majority of gases) but made no difference to the adsorption of benzene vapor. Irradiation of aqueous solutions of ammines of the $[Co(NH_3)_6]Cl_3$ type in direct contact with silica gel raised the amount of liquid adsorbed because of radiation-induced chemical reactions in the solutions rather than due to changes on the silica gel surface. Gamma-irradiation raised also the amounts of oxygen and hydrogen that could be adsorbed by aluminosilica gel. A practical application of these observations consisted of placing γ activated silica gel between the walls of a thermos flask. This improved the vacuum between these walls, by adsorbing more gas than unirradiated silica gel, and thus reduced heat transmsiion through the walls. Such thermos flasks were prepared at the Ashkhabadskiy stekol'nyy kombinat im. V. I. Lenina (Ashkhabad Glass Combine im. V. I. Lenin). There are 7 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzbSSR (Physico-Technical Institute AS UzSSR)

YEMANOV, S. TE.

90

SOV/6176

PHASE I BOOK EXPLOITATION

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences USSR, Resp. Ed.

Deystviye yadernykh izlucheniy na materialy (The Effect of Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR, 1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: Z. A. Adasinskiy; Editorial Board: P. L. Grusin, G. V. Kurdyumov, B. N. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. P. Pravdyuk; Ed. of Publishing House: N. G. Makarenko; Tech. Eds: T. V. Polyakova and I. N. Dorokhina.

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The Effect of Nuclear Radiation (Cont.)

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research orginization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense Y-radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

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The Effect of Nuclear Radiation (Cont.) SOV/5176

Starodubtsev, S. V., M. M. Usmanova, and V. M. Mikhaelyan. Change in Certain Electrical Properties of Boron and Amorphous Selenium Under the Action of γ-Irradiation 355

Starodubtsev, S. V., and Sh. A. Vakhidov. Luminescence of Crystalline Quartz Subjected to UV- and γ-Rays 362

Starodubtsev, S. V., Sh. A. Ablyazov, and S. Ye. Yermatov. Effect of γ-Ray Flux on Absorption Properties of Vacuum Materials 366
Change in absorptive properties of various silica gels and alumosilicates, subjected to γ-ray doses of 150,000 to 350,000 r/h, were investigated.

Trinkler, E. I. Effect of γ-Irradiation on Permeability of Some Ferrites 370

Strel'nikov, P. I., A. I. Fedorenko, and A. P. Klyucharev. Effect of Proton Irradiation on Microhardness of Iron and Steel 374

Card 13/14

ACCESSION NR: AT3007248 S/2952/63/000/000/0011/0018

AUTHORS: Starodubtsev, E.S.V.; Ablyayev, Sh.A.; Yermatov, S.Ye.; Pulatov, U.U.

TITLE: Changes in adsorptivities of silicagels and zeolites under the action of high-frequency discharges

SOURCE: Radiatsion. effekty* v tverd. telakh. Tashkent, Izd-vo AN UzbSSR, 1963, 11-18

TOPIC TAGS: adsorption, adsorptivity, silicagel, zeolite, electric discharge, slow electron, gamma ray, cosmic radiation, temperature effect, isotherm, high-frequency discharge

ABSTRACT: The paper reports the basic results of an experimental investigation of the effect of fluxes of slow electrons on the adsorption properties of synthetic zeolites and silicagels. Test objects were: Silicagel Mark KSK and synthetic zeolites of the types 4Å (NaA) Gor'kovskoye, CaA 5Å Gor'kovskoye, 13x(Nax) Gor'kovskoye, 4Å (NaA) Groznoye, and CaA 5Å Groznoye. High-frequency electric discharges served as slow-electron sources. The changes in the adsorptional properties were investigated experimentally by the adsorption of gases by adsorbents measured by manometric tubes. The specimen adsorbent, contained in a glass ampoule (A), is

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first heated to 350-400°C under continuous evacuation. The A is then filled with the test gas from a reservoir V, following the evacuation of the air from the entire system down to 10^{-3} to 10^{-4} mm Hg. The gas is permitted to enter the adsorbent container A up to a specified pressure, whereupon A is soldered tight and thus cut off from the vacuum equipment and held at room temperature until the establishment of an equilibrium pressure, which is of the order of 10^{-1} mm Hg. The instrument is then exposed to the action of the high-frequency discharges. Zeolites: Test results, plotted in the form of curves, show that all types of zeolites gain in adsorptional capacity under the effect of slow electrons. These changes increase with increasing irradiation time up to a specified limit and then achieve saturation after about 6 to 10 min. Optimal results were obtained with the Gor'kovskoye zeolites of the types 13x(Nax) and CaA 5Å. Isotherms of ordinary and induced adsorption of zeolites with reference to dry air at temperatures of 20 and -196°C were derived. Silicagels: Exposure to the discharges increased the adsorptivity of silicagel substantially. Saturation at any given oscillatory power was achieved after 8-15 minutes. Isotherms of ordinary and induced adsorption of silicagel with respect to dry air in the 10^{-1} to 10^{-3}-mm-Hg range were obtained at temperatures of 0, +30, +60, and -196°C. Adsorbent temperature exerted a noticeable effect on the magnitude of both ordinary and induced adsorption. The adsorptivity of silicagel and zeolites increases with decreasing temperatures even without irradiation.

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ACCESSION NR: AT3007248

However, the changes are substantially greater under irradiation, and the adsorption is much more permanent. The effect of lower temperatures is stronger on zeolites than on silicagels. Some light is shed on the effect of slow electrons and gamma-ray radiational effects on the surface layer and into the depth of an adsorbent. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 14Oct63 ENCL: 00

SUB CODE: PH, EE, MA NO REF SOV: 006 OTHER: 000

Card 3/3

ACCESSION NR: AT3007249 S/2952/63/000/000/0019/0021

AUTHORS: Starodubtsev, S. V.; Ablyayev, Sh. A.; Yermatov, S. Ye; Azizov, S. A.

TITLE: Effect of gamma radiation on the adsorptional properties of synthetic zeolites.

SOURCE: Radiatsion. effekty* v tverd. telakh. Tashkent, Izd-vo AN UabSSR, 1963, [illegible] 19-21

TOPIC TAGS: adsorption, ordinary adsorption, supplementary adsorption, radiation-induced adsorption, zeolite, gamma ray, gamma-ray-induced adsorption, radiation, gamma radiation, temperature effect, isotherm

ABSTRACT: The paper describes an experimental investigation of the effect of gamma rays on the adsorptivity of synthetic zeolites. The tests were performed by the ordinary volumetric method on 3 Gor'kovskoye specimens of the types 4A (NaA), CaA 5A, and 13x (Nax), and two Groznoye specimens 4A (NaA) and CaA 5A. The zeolite specimens were first heat-treated thoroughly at temperatures of 350-400°C at pressures between 10^{-1} and 10^{-6} mm Hg for several hours. The zeolites were then exposed to gamma rays of a radiation dosage rate of 150 to 350,000 r/hr, with a total dose of 2 to $3 \cdot 10^6$ r. The adsorptivity of the zeolites was found to be

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ACCESSION NR: AT3007249

significantly increased; the increase grew to a certain limit depending on the intensity of the radiation dose. The effect of the glass on the test results was determined by identical control ampoules with O and H, with and without adsorbents, exposed to gamma radiation. It was found that the ampoules not containing adsorbents maintained a constant gas pressure. Therefore, the effect of the glass was found to be nil. It was found that the adsorption temperature affects the magnitude of the gamma-ray effect substantially. The radiational effect decreases at elevated temperatures, that is, a radiational anneal occurs. The effect disappears completely at 300-400°C. It is noted that following an anneal the limiting pressure occurs at lower values of the radiational dose. Comparative isotherms of supplementary and ordinary adsorption of an irradiated zeolite were plotted for dry air at −196° and at room temperature. The nature of the radiation effect observed is explained by the knocking out of a Compton electron by a primary gamma quantum, whereupon the fast electrons pass along a path of 2-3 mm within the zeolite. Having expended their energy on the ionization of the matter, they form a large number of relatively slow electrons with energies of the order of tens of ev. The resulting strong ionization forms negative and positive ions which produce excitations and other defects of various kind. The number of possible defects per gamma quantum ordinarily amounts to several tens of thousands; these defects do not differ from those obtainable by UV and X-ray impingement. The supplementary

Card 2/3

ACCESSION NR: AT3007249

adsorption of gases on the zeolites occurs in such defects. Orig. art. has: 3 figs.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 14Oct63 ENCL: 00

SUB CODE: MA, PA, EE, CH NO REF SOV: 005 OTHER: 000

Card 3/3

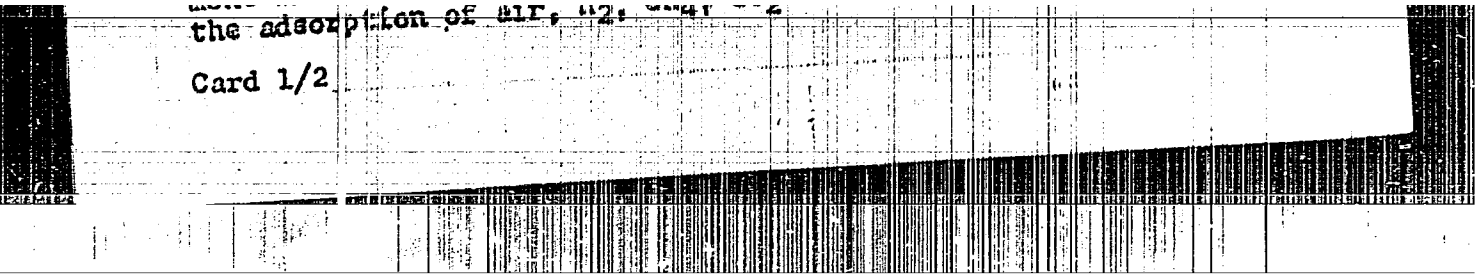
S/109/63/008/002/019/028
D413/D308

AUTHORS: Starodubtsev, S.V., Ablyayev, Sh.A., Yermatov, S.Ye. and Pulatov, U.

TITLE: The effect of radio-frequency discharges on the adsorption properties of silica gel

PERIODICAL: Radiotekhnika i elektronika, v. 8, no. 2, 1963, 328-330

TEXT: The authors have earlier (Dokl. AN SSSR, v. 129, no. 1, 1959, 72; Izv. AN UzSSR, Ser. fiz.-mat. nauk, no. 6, 1960, [illegible] radiation in enhancing the adsorp-



The effect of radio-frequency ...

times was measured by manometer tubes. The resulting curves show increases in adsorption closely similar to those obtained by the action of γ-radiation, ranging from zero for He to a saturation value of 0.4 μ mole g^{-1} for H_2. The induced adsorption disappears completely on baking at 350°C. Isotherms are also given for the induced adsorption of dry air at 0°, 30° and 60°C over the range

ica-gel. There are 3 figures.

SUBMITTED: March 19, 1962

Card 2/2

STARODUBTSEV, S.V., akademik; ABLYAYEV, Sh.A.; YERMATOV, S.Ye.; FULATOV, U.U.

Change in the adsorbing capacity of silica gel induced by high-frequency discharges. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk no.6:77-78 '61. (MIRA 16:12)

1. Fiziko-tekhnicheskiy institut AN UzSSR. 2. Akademiya nauk UzSSR (for Starodubtsev).

L 2442-66 EWT(m)/EPF(c)/EPF(n)-2/EWP(t)/EWT(b) LJP(c) JD/GG/GF
ACCESSION NR: AT5023820 UR/0000/62/000/000/0366/0369

AUTHOR: Stardubtsev, S. V.; Ablyayev, Sh. A.; Yermatov, S. Ye.

TITLE: Effect of gamma fluxes on the adsorptive properties of vacuum materials

SOURCE: Soveshchaniye po probleme Deyatviye yadernykh izluchaniy na materialy. Moscow, 1960. Deyatviye yadernykh izluchaniy na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 366-369

TOPIC TAGS: silica gel, aluminum silicate, gamma irradiation, irradiation effect, gas adsorption

ABSTRACT: The article continues the study of X-ray-induced changes in the adsorptive properties of KSK and ASM silica gels and plant-produced aluminosilicates. Oxygen and hydrogen were used as the adsorbed gases, and the radiation dose rate was (150-350) 10^3 r/hr. All the results showed an increase in adsorptive capacity that was much more pronounced in silica gels than in aluminosilicates. The temperature dependence of this radiation effect was investigated between +100 and -130C, and the adsorptive capacity was found to increase with decreasing temperature (this increase was much greater than that of nonirradiated samples). The adsorption isotherms were found to be linear both at room temperature and at the

Card 1/2

L 2442-66
ACCESSION NR: AT5023820

liquid nitrogen temperature. Curves of the time dependence of the adsorption showed that equilibrium pressure is established after a certain time interval, i.e., the adsorption is not instantaneous. The data indicate that to a first approximation the additional active adsorption centers produced by the γ rays obey the same laws as ordinary centers on silica gel. The property of silica gels to thus increase their adsorptive capacity was utilized for the creation of a greater vacuum in Dewar flasks and thermos bottles. Tests showed that the rate of cooling of hot water in pre-irradiated thermos bottles containing a silica gel compartment was slower, and after 20 hr. the temperature of the water was 5 to 8° higher than in nonirradiated bottles. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 18Aug62 ENCL: 00 SUB CODE: NP, MT

NO REF SOV: 001 OTHER: 000

BVK
Card 2/2

ACC NR: AP7004640 SOURCE CODE: UR/0288/66/000/003/0104/0105

AUTHOR: Umarov, G. Ya.; Lyutovich, A. S.; Yermatov, S. Ye.; Karimov, F. R.

ORG: Physico-technical Institute, AN UzSSR, Tashkent (Fiziko-tekhnicheskiy institut AN UzSSR)

TITLE: The possibility of obtaining semiconductor and difficultly fusible materials with the aid of a jet discharge

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1966, 104-105

TOPIC TAGS: thermal reactor, oxidation reduction reaction, gas discharge, high frequency discharge, metal oxide, water cooled nuclear reactor

ABSTRACT: A gas discharge setup (see Fig. 1) is described for deoxidizing such materials as silicon oxide and metallic oxides. The discharge in this water-cooled quartz reactor is maintained by 10-kw, 25-Mc, rf energy source and the raw materials are $SiCl_4$ and MoO_3. The reactor is 75 cm long and 20 cm in diameter. When molybdenum oxide is being reduced cooling is not necessary. The discharge is started at silicon electrode progressing to the surrounding mixture of hydrogen and silicon tetrachloride. When molybdenum oxide is being reduced the electrode is made of molybdenum. Under normal conditions to reduce molybdenum trioxide to dioxide state

Card 1/2 UDC: 621.315.592+669.018.45+669.094.1

ACC NR: AP7004640

at 700C it is necessary to maintain the discharge for 2--3 hr. In this setup, however, after 5--7 min of deoxidation the oxygen content is reduced by 25%. Silicon powder is collected on the walls of the quartz tube during discharge. When hydrogen flow is 20 liter/min and that silicon tetrachloride is 200 ml/hr, 40% of applied silicon is collected on the tube walls. Orig. art. has: 1 figure and 1 table.

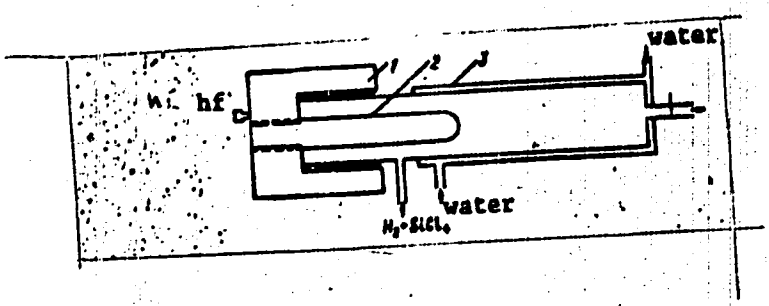


Fig. 1. Quartz reactor
1 - base, 2 - electrode, 3 - quartz reactor

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2

SOKOLOV, N.V., kand. tekhn. nauk; BURKOV, G.G., inzh.; KRASIL'NIKOV, L.A., inzh.; GOLOMAZOV, V.A., inzh.; BOBYLEVA, S.F.; LYSKOV, I.K.; Prinimali uchastiye: BREZHNEV, I.S.; SHCHETKIN, L.I.; YERMAYSKAYA, A.M.; ANDRIANOVA, A.L.; SILANT'YEV, L.A.; NADEZHDINA, A.A.; LAKHMOSTOVA, F.S.; DEMENT'YEV, V.F.

Improvement of the processes of manufacturing high-strength, steel brass plated wire. Stal' 24 no.8:756-759 Ag '64. (MIRA 17:9)

1. Beloretskiy staleprovolochno-kanatnyy zavod.

L 27512-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG/GS

ACC NR: AT6012372 SOURCE CODE: UR/0000/65/000/000/0075/0081

AUTHORS: Tret'yachenko, L. A.; Yeremenko, V. N.

ORG: none

TITLE: Phase equilibria in the system Ti--V--C at 1450, 1600, and 1800C

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 75-81

TOPIC TAGS: titanium, vanadium, carbon, alloy phase diagram, phase composition

ABSTRACT: Phase diagrams for the system Ti--V--C at 1450, 1600, and 1800C were derived (see Fig. 1). The investigation supplements the results of V. N. Yeremenko (Titan i yego splavy. Kiyev, Izd-vo AN UkrSSR, 1961). Microstructure photographs of the specimens are presented. The phase composition was determined by x-ray spectroscopy. The results of x-ray analysis, microhardness, and change in the lattice parameters are in good agreement with the phase boundaries of the phase diagrams.

Card 1/3

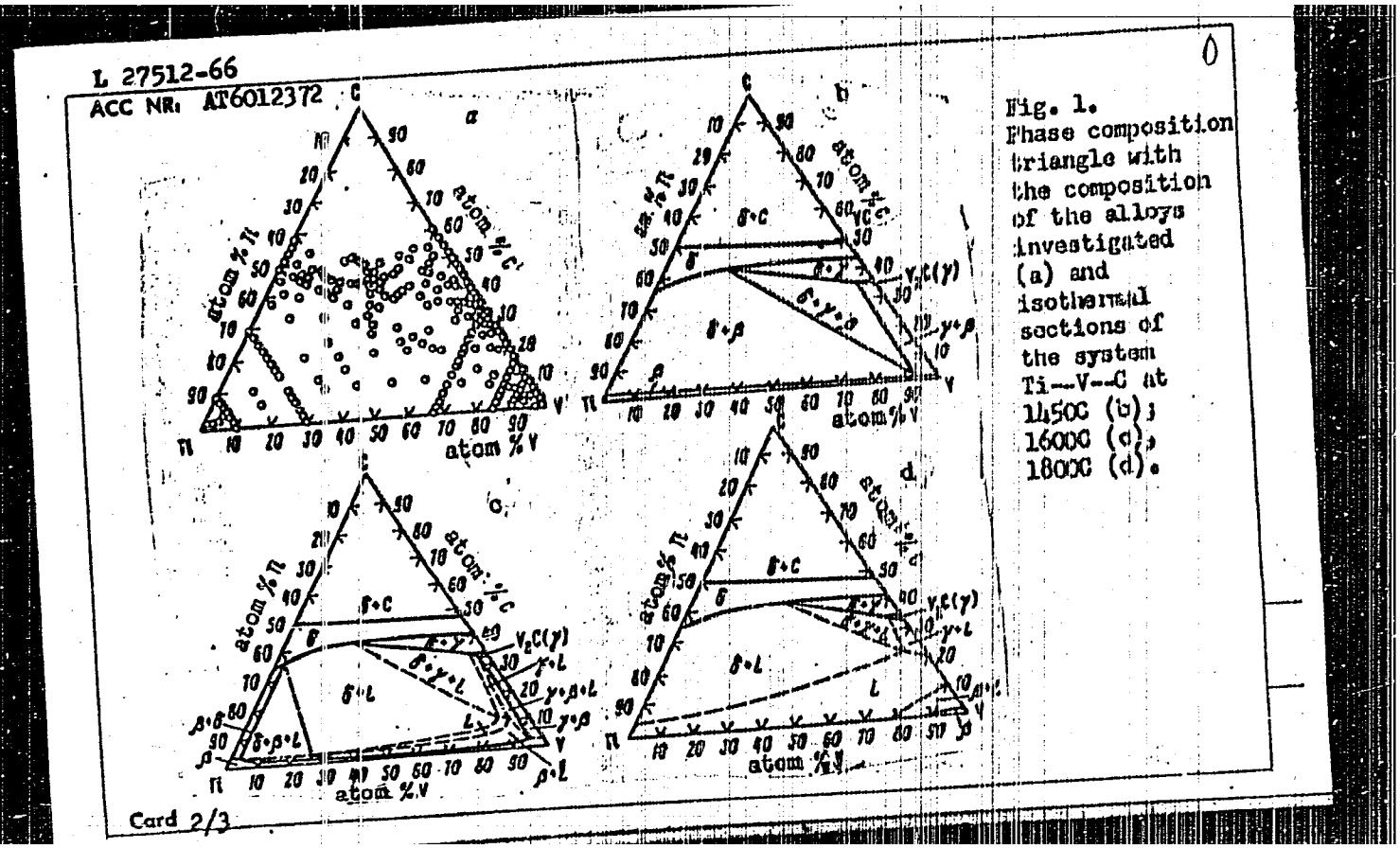


Fig. 1.
Phase composition triangle with the composition of the alloys investigated (a) and isothermal sections of the system Ti—V—C at 1450C (b); 1600C (c), 1800C (d).

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001962810011-2"

L 27512-66
ACC NR: AT6012372

Orig. art. has: 1 table and 5 figures.

SUB CODE: 11/ SUBM DATE: 02Dec65/ ORIG REF: 009/ OTH REF: 014

Card 3/3 BKG

YERMEKOV, M.A.

Some features of the changes in gas content of the Karaganda Basin coal layers. Vest. AN Kazakh. SSR 13 no.3:41-52 Mr '57. (MLRA 10:6)
(Karaganda Basin--Gas, Natural)

Yermekov, M.A.

YERMEKOV, M.A.

Results of a comparative test of apparatus used in determining the gas resources of coal layers. Vest. AN Kazakh. SSR 13 no.12:83-84 D '57. (MIRA 11:1)

(Gas, Natural) (Prospecting)

YERMEKOV, M. A., Cand Geol-Min Sci -- (diss) "Methods of studying the gas-bearing capacity of the coal-bearing deposits of Karaganda basin in the process of geological prospecting operations based on the example of Churubay-Nurinskiy Rayon."

Alma-Ata, 1958. 12 pp (Min of Higher Education USSR, Kazakh Mining and Metallurgical Inst), 150 copies (KL, 35-58, 106)

YERMEKOV, M.A., kand.geologo-mineralogicheskikh nauk

Determination of the natural gas potential of coal measures in exploratory boreholes by the KG-55 core gas sampler. Sbor. nauch.trud.KazGMI no.18 208-213 '59. (MIRA 15:2)
(Gas, Natural)

YERMEKOV, M.A. [IEmekov, M.A.], dotsent

Colorimetric determination of phosphorus in acid soil extracts by vanadate-molybdate method. Nauk. pratsi UASHN 17 no.12:163-166 '60. (MIRA 16:7)

(Soils--Phosphorus content)

YERMEKOV, M.A., kand. geologo-mineralogicheskikh nauk

Establishing the regular pattern of changes with depth in the gas pressure of an intact massif. Vest. AN Kazakh. SSR 18 no.5: 78-80 My '62. (MIRA 17:10)

YERMEKOV, M.A.

Applying the theory of probabilities to the analysis of the density of the pattern of test holes by the conditional spacing method. Izv.AN Kazakh.SSR. Ser.geol. no.5:91-101 '62. (MIRA 15:12)
(Prospecting)

YERMEKOV, M.A.

Methods for the determination of methane potential in coal deposits. Izv. AN Kazakh. SSR. Ser. geol. 22 no.4:53-59 Jl-Ag '65. (MIRA 18:9)

1. Institut geologicheskikh nauk im. K.I.Satpayeva, g. Alma-Ata.

YELEMANOV, A.Ye.; YEZHKOV, M.A.

[Sheep breeding] Ovtsevodstvo. Alma-Ata, Kazakhskoe gos. izd-vo, 1954. 319 p. (MLRA 9:12)
(Sheep breeding)

YERMEKOV, M.A. (Alma-Ata); GLADKOV, P.F. (Alma-Ata)

Vitality and adaptability of animals. Agrobiologiia no.4:584-587 Jl-Ag '62. (MIRA 15:9)

(KAZAKHSTAN--SHEEP BREEDING)

YERMEKOV, M.A., zasluzhennyy deyatel' nauki Kazakhskoy SSR; GLADKOV, P.F., mladshiy nauchnyy sotrudnik; CHUMIN, N.P., mladshiy nauchnyy sotrudnik

Fat-tailed sheep of central Zazakhstan. Zhivotnovodstvo 24 no.9:61-67 S '62. (MIRA 15:12)

1. Kazakhskiy nauchno-issledovatel'skiy institut zhivotnovodstwa.
(Kazakhstan—Sheep breeds)

86689

S/136/60/000/012/009/010
E193/E183

Investigation of Stresses During Extrusion of Ribbed Aluminium Alloy Components

between the calculated and factual magnitude of P was only 21%. The general conclusion reached was that if the magnitude of $S_{d.c}$ and K_{kp} for a given alloy is determined experimentally, the extrusion pressure can be calculated with sufficient accuracy with the aid of formula (1a).
There are 5 figures, 4 tables and 8 Soviet references.

X

Card 7/7

YERMANOK, M.Z.

Statistical determination of the basic parameters on which depends the amount of stress in pipe and wire drawing from certain metals and alloys. Sbor. nauch. trud. GINTSVETMET no.33:331-338 '60. (MIRA 15:3)
(Drawing (Metalwork)) (Nonferrous metals)

18.1285
18.8200

31741
S/136/61/000/012/005/006
E193/E383

AUTHORS: Dontsov, S.N., Yermanok, M.Z., Candidates of Technical Sciences and Chizhov, I.N., Engineer

TITLE: Strength characteristics of titanium alloys and their application in calculating stresses during plastic-working operations

PERIODICAL: Tsvetnyye metally, no. 12, 1961, 74 - 76

TEXT: Lack of experimental data on the resistance of Ti alloys to deformation at various temperatures and deformation rates causes difficulties in designing equipment for plastic-working of these materials and in establishing optimum working schedules. Hence the present investigation, which is concerned with the properties of pure Ti (ВТ1 (VT1)) and Ti alloys (ВТ6 (VT6), ВТ 5 (VT5) and ОТ4). In Fig. 1, the hot tensile strength (σ_B, kg/mm^2) of these materials is plotted against temperature ($^\circ$C). It will be seen that at 1 050 - 1 150 $^\circ$C, i.e. in the hot-working temperature range, σ_B of all four materials is very much the same. These values, however, cannot

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be used as the basis for calculating stresses during hot-working operations because they represent strength of undeformed material, whereas the strength of an alloy near the exit end of the deformation region depends on the deformation (rolling) rate. The effect of strain rate on σ_B of the alloys studied is illustrated in Fig. 2, where σ_B of the alloy VT5 is plotted against test temperature (°C), curves 1-4 relating, respectively, to strain rates of 0.33, 280, 740 and 1 120 %/sec; (similar results were obtained for the alloy VT6). The data presented in Fig. 2 are reproduced in a different manner in Fig. 3, where the so-called strengthening coefficient (c) is plotted against the strain rate (N, %/sec) at temperatures indicated by each curve. If it is assumed that the average resistance of a metal to deformation during rolling, $S_{n.cp}$, is an arithmetical mean of its tensile strength near the entry and exit ends of the deformation region, it can be calculated from the formula:

Strength characteristics of ....

$$S_{д.ср} = \frac{1 + c}{2} \cdot \sigma_{в\,СТАТ} \qquad (2)$$

where $\sigma_{в\,СТАТ}$ is the tensile strength determined by the static test at a given temperature and c is the strengthening coefficient corresponding to a given rolling temperature and speed. If, as has been postulated by Perlin, $\sigma_{д.ср}$ is a geometrical means of $\sigma_{в}$ near the exit and entry ends of the deformation region, Eq. (2) becomes:

$$S_{д.ср} = \sigma_{в\,СТАТ} \cdot \sqrt{c} \qquad (3) .$$

The magnitude of c is independent of the rate of deformation in cold-rolling and the average resistance to deformation in this case is simply

Card 3/3

Strength characteristics of ....

the arithmetical mean of UTS of the alloy before and after rolling. A more accurate value of $S_{д.ср}$ in cold-rolling is given by the formula proposed by M.Z. Yermanok in Ref. 5 (IVUZ, Tsvetnaya metallurgiya, 1959, no. 6):

$$S_{д.ср} = \frac{\sigma_{в\,нач} \cdot F_{нач} \cdot \sigma_{в\,кон} \cdot F_{кон}}{F_{нач} + F_{кон}} \qquad (5)$$

where $\sigma_{в\,нач}$ and $\sigma_{в\,кон}$ denote, respectively, the UTS of the alloy before and after rolling,

$F_{нач}$ and $F_{кон}$ denoting the cross-sectional area of the stock at the entry and exit ends of the deformation region.

Card 4/5

33165

S/136/62/000/002/002/004
E073/E135

10.7200 4016

AUTHORS: Zlotin, L.B., and Yermanok, M.Z.

TITLE: Diagrams for calculating the dependence of the resistance to deformation on the duration and degree of deformation

PERIODICAL: Tsvetnyye metally, 35 no.2, 1962, 66-69

TEXT: A basic parameter for calculating the forces required in metal forming is the resistance to deformation Sd, which is greatly influenced by the degree and duration of the deformation. Experimental investigation of these factors is very difficult; also, no standard high-speed experimental equipment is in existence. Therefore various authors attempted to derive formulae for analytical determination of the resistance to deformation during high-speed deformation. In all these formulae the decisive parameter is the speed of the relative deformation

$$W = \delta/\tau \quad (1)$$

where δ is the relative deformation in fractions of unity,

Card 1/4

Diagrams for calculating the ...

τ is the duration of the deformation in seconds. However, the speed of deformation is not a universal parameter; also, the effects of the degree of deformation and the duration of deformation on S_d are not identical. Published data and results obtained by the authors indicate that the influence of the degree of deformation is high, and that it is advisable to take into consideration separately the influence of the degree and the duration of the deformation. The present authors derived a mathematical expression for the influence of the degree and duration of the deformation based on extensive experimental results obtained on the most widely used heavy nonferrous metals and alloys under a great variety of conditions. The S_d versus τ relations are represented in the form of curves which converge into a single point denoted as the initial resistance to deformation at the given temperature $S_{d.H}$ which is the ultimate strength σ_b determined from static tests. This assumption is based on the following considerations: 1) The yield point does not characterise the resistance to deformation if the deformation

Card 2/4

is predominantly plastic; the force required for plastic stretching or compression is more relevant from this point of view. 2) The real stresses during plastic extension are approximately equal to the strength value and, therefore, it is advisable to use this value as an initial characteristic in the calculations. The authors derived an empirical relation by mathematical statistics methods, using the method of least squares, for determining the coefficients of the sought equation, which is:

$$S_{d.K} = S_{d.H} \cdot a \cdot e^{-b \lg \tau} \qquad (2)$$

where a and b are coefficients which depend on the nature of the material, the temperature and degree of deformation. This equation can be transformed into:

$$\lg \frac{S_{d.K}}{S_{d.H}} = A - B \lg \tau \qquad (3a)$$

Diagrams for calculating the ...

In the coordinates $\lg \frac{S_{d.K}}{S_{d.k}} - \lg \tau$, Eq.(3a) can be represented in the form of straight lines, and from this equation diagrams were plotted which converge into a point and permit the determination of $S_{d.K}$. The results are in good agreement with experiment, the maximum divergence being less than 15%. Analysis of the diagrams plotted in the paper indicates that Eq.(2) reflects the non-identity of the influence of the degree and duration of deformation on the value of S_d. The proposed method was verified by comparison with published experimental results and the agreement was found to be satisfactory. The S_d versus τ diagrams reduce considerably the amount of work involved in calculating the value S_d which is required for force calculation in metal forming processes.
There are 3 figures, 1 table and 11 Soviet-bloc references.

Card 4/4

37536

S/136/62/000/005/001/002
E193/E383

1,1310

AUTHORS: Yermanok, M.Z. and Shcheglov, G.M.

TITLE: Extrusion by the inverted and combined method on presses with limited travel of the container

PERIODICAL: Tsvetnyye metally, 36 no. 5, 1962, 61 - 65

TEXT: When extrusion is used for fabricating aluminium- or magnesium-alloy sections without lubricating the container, much lower extrusion pressures are required if inverted extrusion is employed. The limited travel (200 - 350 mm) of the container in most of the existing extrusion presses narrows considerably the range of applicability of this method. This difficulty, however, can be overcome by using a technique which makes it possible to perform inverted extrusion on presses with limited travel of the container and which is described in the present paper. The technique is demonstrated schematically in Fig. 1. The extrusion billet 5 is inserted into the container and upset (Fig. 1a). The locking wedge is then withdrawn and the die head 9 (with an elongated die-holder 7 and a die 6) is then withdrawn from the container liner 3 ; the billet is

Card 1/3

Extrusion by the inverted ....

then moved forward by the extrusion ram 1 and pressure disc 2 until it becomes flush with the front end of the container liner, the container itself being moved back against its stop (Fig. 1б). The die head is then brought into position and locked, after which the inverted-extrusion operation is carried out (Fig. 1в). As a result of the pressure acting on the billet, the container with the billet advances towards the die head, the die-holder enters the container liner and the metal is extruded through the die. Movement of the container ceases when the entire length of the die-holder has entered the container and this completes the first stage of the operation (Fig. 1г). Further extrusion can be done either by the direct or by the inverted method. In the former case, the entire process will have included both direct and inverted extrusion and can, therefore, be referred to as "combined method of extrusion"; the advantages of this method are demonstrated by data reproduced in Table 1. If the reduction of the extrusion pressure attained by using the combined method is not sufficiently large, the operation, after reaching the stage shown in Fig. 1г, can be

Extrusion by the inverted ....

continued by the inverted method, the consecutive stages of which are shown in Fig. 1d, e and f. The combined extrusion method was tested by using it to fabricate a most difficult type of extruded section, namely, a section comprising three different profiles, which was extruded with the aid of three split dies. The results indicated that the combined method required an extrusion pressure 625 - 750 tons lower than that required for direct extrusion, which means that both longer billets can be used and smaller cross-section profiles can be made by this method. In addition, the lower temperature of the billet makes it possible to increase the extrusion speed from 0.6-0.7 to 1-1.1 m/min, whereby the efficiency of the process is increased. There are 5 figures and 3 tables.

Card 3/5

YERMANOK, M.Z.; SHIPILOVA, L.P.

Mechanical properties of semifinished AMg-6 alloy products.
Metalloved. i term. obr. met. no.10:36-37 O '63. (MIRA 16:10)

ZACHAROV, M.F.; GLEBOV, Yu.P.; YERMAKOK, M.Z.

Pressure conditions in the extrusion of pipe with an arbitrary internal shape. Izv. vys. ucheb. zav.; tsvet. met. 6 no.3:128-136 '63. (MIRA 16:9)

(Extrusion (Metals))

YERMANOK, M.Z., SKOBLOV, L.S.

Effect of geometric factors on pressure conditions in the extrusion of aluminum alloy billets. TSvet. met. 36 no.7:64-71 Jl '63. (MIRA 16:8)

(Aluminum alloys) (Extrusion (Metals))

YERMANOK, M.Z.; SKOBLOV, L.S.

Analyzing formulas for the determination of forces needed for rod extrusion. TSvet. met. 36 no.10:78-80 O '63. (MIRA 16:12)

ACCESSION NR: AP4030670 S/0129/64/000/004/0043/0044

AUTHOR: Yermanok, M. Z.; Tomashevskaya, I. M.

TITLE: Influence of preliminary cold deformation on mechanical properties of alloy D16 in tempered pipes

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 4, 1964, 43-44

TOPIC TAGS: cold rolled pipe, pipe deformation, pipe strength, D16 alloy, cold drawn pipe, tempered pipe

ABSTRACT: Thin walled pipes of D16 alloy made by cold rolling or drawing of a hot forged billet show a degree of deformation from 30-35% to 80-85%, resulting in considerably different mechanical properties. Although this is a very important practical problem, its study has been inadequate. The goal of the authors was to determine the mechanical properties of tempered pipes depending on the degree of deformation prior to tempering. As a result of cold rolling an annealed billet into pipes, their annealing and tempering from 500C in water, the following results were obtained: (1) the wall thickness (1-3 mm) has but little influence on the mechanical properties of D16 alloy pipes; and (2) increasing the rate of cold

Card 1/2

ACCESSION NR: AP4030670

deformation to 70% prior to tempering considerably increases the strength characteristic, and the value of relative elongation corresponds the GOST standard 4773-49. Further increase in deformation does not improve the strength characteristic of pipes. Minimum amounts of preliminary deformation required to reach peak levels of the yield point according to GOST 4773-49 have been established. Orig. art. has 2 figures, no formulas, no tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00

SUB CODE: MM NO REF SOV: 000 OTHER: 000

Card 2/2

ACCESSION NR: AP4015111 S/0136/64/000/002/0062/0065

AUTHOR: Perlin, I.L.; Glebov, Yu.P.; Yermanok, M.Z.

TITLE: Effect of temperature, degree and rate of deformation on the deformation strength of aluminum alloys.

SOURCE: Tsvetnyye metally, No.2, 1964, 62-65

TOPIC TAGS: aluminum alloy, D16 aluminum alloy, V95 aluminum alloy, AD31 aluminum alloy, deformation strength, deformation rate, deformation temperature, deformation strength temperature function

ABSTRACT: The effect of different temperatures (360, 420, 480C) and various deformation rates (0.19, 0.8, 220 and 880 mm/sec) on the deformation strength S_λ was investigated for D16, V95, and AD31 aluminum alloys. The deformation rate w affects S_δ ; and with increased degree of deformation ψ, the intensity of the growth of S_λ is decreased and in some cases even lowered (for AD31 S_λ is lower at a rate of 14 $sec.^{-1}$ than at 4 $sec.^{-1}$). The curves which show the dependence of S_λ on degree of deformation have a maximum, and it is also shown that

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ACCESSION NR: AP4015111

the degree of deformation depends on temperature and rate of deformation. As temperature increases the maximum on the curve is shifted in the direction of smaller deformation values; and with increasing rate of deformation, it is shifted in the direction of larger deformation values. Working diagrams (fig.1) of the $S_\lambda = f(t°)$ relationship were constructed by extrapolation from experimental data for the 3 temperatures investigated. Curves are also included for the most probable deformation periods encountered in extruding the given alloys. The lower curves $S_{\lambda w}$ show the initial values corresponding to S_λ for ψ = 3-6% and minimum rate of deformation w = 0.03 sec^{-1}. Orig. art. has: 3 figures

ASSOCIATION: None

SUB CODE: ML DATE ACQ: 12Mar64 ENCL: 01

SUBMITTED: 00 NO REF SOV: 009 OTHER: 003

Card 2/2

NOSAL', V.V., prof., doktor tekhn.nauk; VERDEREVSKIY, V.A., kand.tekhn. nauk; TERMANOK, M.Z., kard.tekhn.nauk

Review of a book by Z.A.Koffa and others "Cold rolling of pipe." Stal' 24 no.6:536-537 Je '64. (MIRA 17:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya (for Nosal', Verderevskiy).

L 1653-66 EWT(m)/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HW

ACCESSION NR: AP5021620 UR/0286/65/000/013/0101/0101
621.979.984.002.54

AUTHOR: Shofman, L. A.; Cherepin, Yu. Yu.; Bozhkov, V. M.; Starikov, V. S.; Kryuchkov, N. K.; Davydov, G. G.; Akhmetshin, N. G.; Kvitnitskiy, A. A.; Nogotinskiy, A. A.; Puzyrin, V. I.; Yemanov, A. V.; Rozhkov, L. Kh.; Yermanok, M. Z.; Rodionov, A. S.

TITLE: Method for tube extrusion. Class 49, No. 172601

SOURCE: Byulleten' izobretoniy i tovarnykh znakov, no. 13, 1965, 101

TOPIC TAGS: metal, metal tube, metal extrusion, tube extrusion

ABSTRACT: This Author Certificate introduces a method for tube extrusion from solid ingots. In this method the metal is first divided into several strips which are subsequently welded in the next die. In order to reduce the extrusion pressure, the diameter of the ingot should be smaller than that of the extruded tube. [AZ]

ASSOCIATION: none

SUBMITTED: 30Jan64 ENCL: 00 SUB CODE: MM
NO REF SOV: 000 OTHER: 000 ATD PRESS: 4093

Card 1/1

L 1655-66 EWT(d)/EWT(m)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/EWP(b)/EWP(l)/EWA(c)
JD/HW
ACCESSION NR: AP5021621

UR/0286/65/000/013/0102/0102
621.979.984.002.54

AUTHOR: Shofman, L. A.; Gedymin, Yu. Yu.; Roshkov, V. M.; Sterikov, V. E.; Kryuchkov, M. V.; Davydov, G. V.; Akhmatshin, M. N.; Kvitnitskiy, A. B.; Bocharnikov, V. A. A.; Peygin, V. I.; Yegorov, I. V.; Roytberg, L. Kh.; Yermolok, N. Z.; Rodionov, A. S.

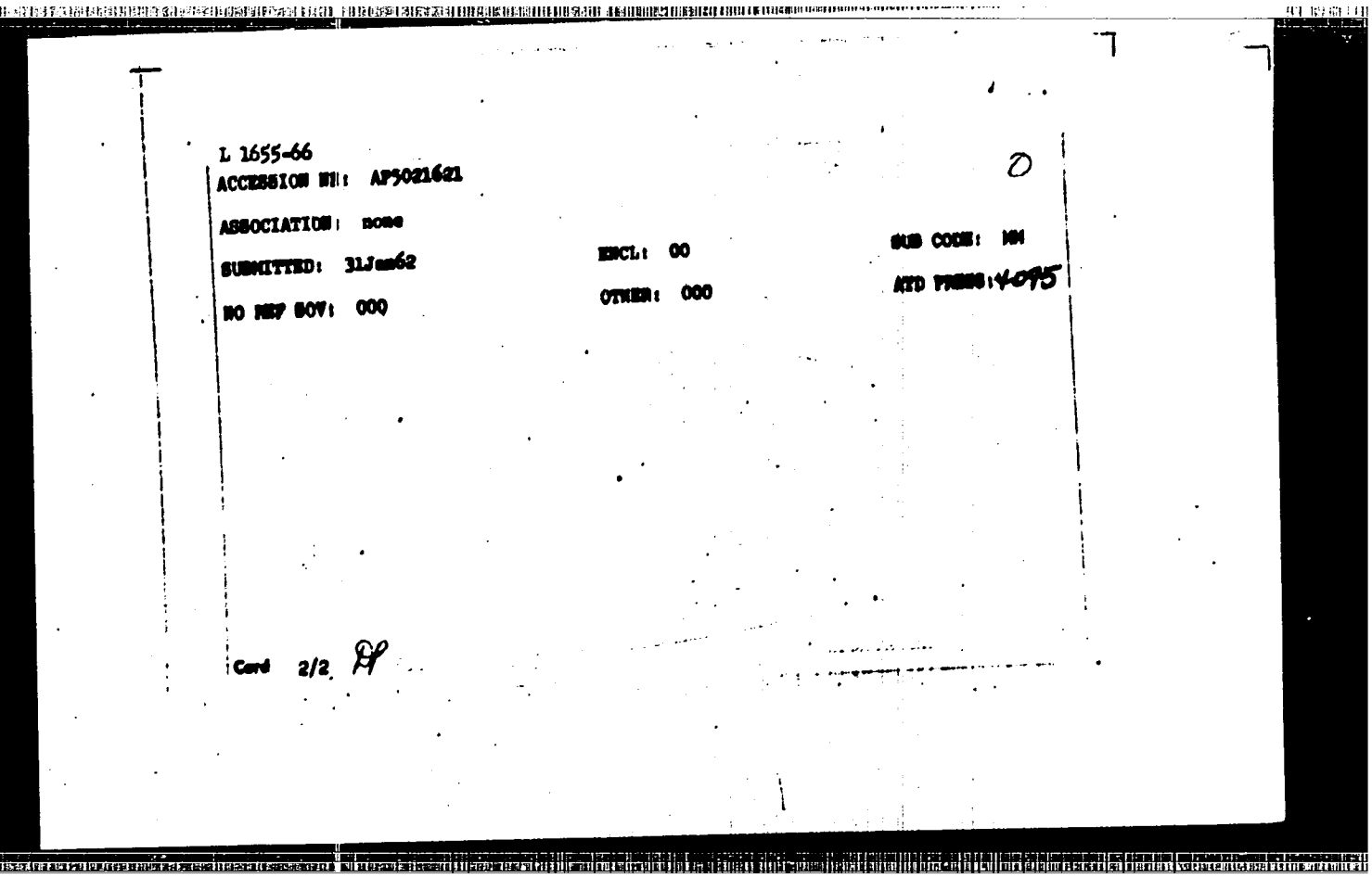
TITLE: Tool for extruding of tubes. Class 49, No. 172602

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 102

TOPIC TAGS: tube, metal tube, tube extrusion, extrusion tool, extrusion press

ABSTRACT: This Author Certificate introduces a tool for the extrusion of tubes from solid ingots, i.e., container, mandrel, welding chamber, and die. In order to increase the rigidity of individual tools and ensure their precise position in relation to one another, thereby improving the accuracy of the extruded tubes, the mandrel is rigidly mounted in relation to the container; it carries an internal die and is provided with a central compartment for the ingot. Radial canals connect this compartment with the welding chamber, which is formed between container wall and the mandrel surface. [AZ]

Card 1/1



L 1655-66
ACCESSION NR: AP5021621 D

ASSOCIATION: none

SUBMITTED: 31Jan62 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4095

Card 2/2

L 5192-66 EWP(e)/EWT(m)/EPF(c)/EWP(t)/T/EWP(t)/EWP(b)/EWA(h) JD/WW/DJ/WH

ACC NR: AP5024999 SOURCE CODE: UR/0286/65/000/016/0062/0062

AUTHORS: Uvarov, V. Ya.; Glebov, Yu. P.; Zhuravlev, F. V.; Yermanok, M. Z.; Rubin, Yu. L.; Zakharov, M. F.; Kochnova, G. P.; Sukhanova, M. P.

ORG: none

TITLE: Lubricant for heat treatment of metals. Class 23, No. 173869 [announced by the Organization of Mosgorsovnarkhoz (Organizatsiya mosgorsovnarkhoza)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 62

TOPIC TAGS: lubricant, metal heat treatment, mineral oil

ABSTRACT: This Author Certificate presents a mineral oil and graphite lubricant for heat treatment of metals. To prevent metals from sticking to the instrument, talcum and red lead are added to the lubricant. The talcum constitutes 10% by weight of the additive, and the red lead constitutes 8-25% by weight.

SUB CODE: FP/ SUBM DATE: 06Jul64

Card 1/1 UDC: 665.5

YERMANOK, M.Z.

Analysis of formulas for computing thickness changes in pipe walls during drawing without mandrels. TSvet. met. 38 no.6: 66-71 Je '65. (MIRA 18:10)

YERMANOK, M.Z.

Calculating transitions during pipe drawing. TSvet. met. 38 no.11:113-114 N '65. (MIRA 18:11)

GUN, G.Ya.; POLUKHIN, P.I.; PRUDKOVSKIY, B.A.; POLUKHIN, V.P.; [illegible]ERMANOK, M.Z.

Calculating strain hardening and the temperature field during extrusion. Izv. vys. uchob. zav.; tsvet. met. 8 no.4:134-139 '65. (MIRA 18:9)

1. Kafedra tekhnologii i avtomatizatsii prokatnogo proizvodstva Moskovskogo instituta stali i splavov.

L 28860-66 EWP(k)/EWT(m)/T/EWP(t)/ETI IJP(c) JH/DJ/JD/HM

ACC NR: AP6010304 SOURCE CODE: UR/0136/66/000/003/0074/0077

AUTHOR: Yermanok, M. Z.; Skoblov, L. S.; Filina, T. M.

ORG: none

TITLE: Calculation of working stresses during pressing of hollow shapes in dies with built-in core-fin

SOURCE: Tsvetnyye metally, no. 3, 1966, 74-77

TOPIC TAGS: stress analysis, die, metal pressing, metal friction, friction

ABSTRACT: The Al and Mg alloy shapes forged in core-fin dies may be divided into five basic groups (Fig. 1): a, with cylindrical external and internal contours, round tubes; b - with cylindrical external contour and shaped internal contour; c, d - with shaped external contour and cylindrical internal contour; e, f, g, loop type (the area of orifice for these 3 groups of shapes is incommensurably small compared with the cross sectional area of the shape); h, i, j, k, l - with shaped external and internal contours. In this connection, the author corrects the known formulas of pressing stress for the pressing of round tubes in core-fin dies (Perlin, I. L. Teoriya pressovaniya metallov. Izd-vo Metallurgiya, 1964), since Perlin failed to take into account the friction of metal against the die core-fin. Assuming that this fin represents a triangular prism whose sides are friction surfaces, the author derives the

Card 1/3 UDC: 669.2/2.:621.97

L 28860-66
ACC NR: AP6010304

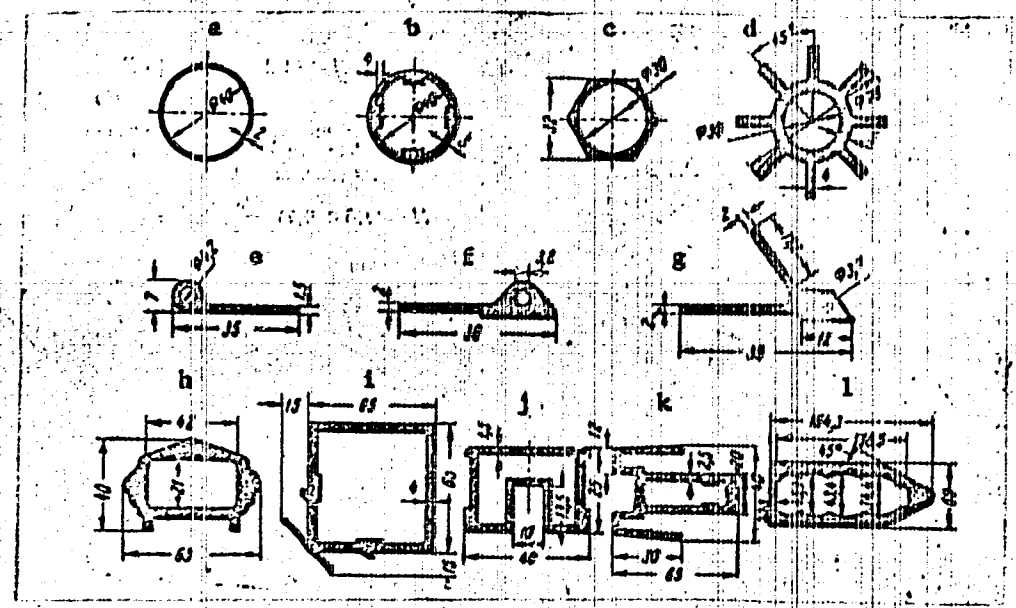


Fig. 1. Basic types of hollow shapes

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L 28860-66
ACC NR: AP6010304

formula for friction against the fin:

$$T_{fin} = \frac{0.8D_{o.d.}^2}{\sin\beta}\,\tau_{rp}\int_0^{a_k}\frac{da_x}{0.8D_{o.d.} - a_x};$$

$$T_{fin} = \frac{0.8D_{o.d.}^2}{\sin\beta}\cdot\ln\frac{0.8D_{o.d.}}{0.8D_{o.d.} - a_k}$$

where T_{fin} is friction against the fin, $D_{o.d.}$ is the outside diameter of the forging, τ_{fin} is the mean friction stress at the fin surface. This as well as the other calculation presented shows that, after some corrections, Perlin's formulas may be used for the analytic determination of working stresses during the pressing of hollow shapes in dies with built-in core-fins. Orig. art. has: 2 figures, 9 formulas.

SUB CODE: 11, 13 / SUBM DATE: none

Finned tubes 16

Card 3/3

YERMANOK, M.Z.

Effect of the wall thickness of a blank and steepness of the swell on the reduction magnitude in an instantaneous deformation center. TSvet. met. 37 no.6:59-63 Je '63. (MIRA 17:9)

S/125/60/000/012/004/014
A161/A030

AUTHORS: Brodskiy, A.Ya; Fridman, A.M; Yermanok, Ye.Z; Frolov, S.A.

TITLE: Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 12, pp. 28 - 36

TEXT: The weldability of 30ХГ2С (30KhG2S) reinforcement steel in resistance welding machines has been investigated and practical recommendations are given. The standard composition of this steel (GOST 5058-57) is: 0.26 - 0.35% C; 0.6 - - 0.9% Si; 1.2 - 1.6% Mn; 0.6 - 0.9% Cr; not above 0.3% Ni and Cu (each); the mechanical properties: conditional yield limit $\sigma_{0,2} \geq 60$ kg/mm^2; ultimate strength $\sigma_в \geq 90$ kg/cm^2; elongation $\delta_5 \geq 6\%$; bending angle 45° in cold state around a mandrel with diameter equal to 5 diameters of the tested rod. Rods used for experiments were periodical, with 14 - 28 mm diameter, produced by the Stalino and Magnitogorsk metallurgical works. Round test specimens with sharp notch in different heat affected zones, so-called ЦНИПС(TsNIPS specimens) were used with success first or all with other reinforcement steel, but had to be replaced with Menazhe (Russian transliteration) notch specimens for 30KhG2S because of its very high notch sensitivity. It proved also very sensitive to inaccuracy of connection

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Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

angle in cross connections as well as to burns in machine grips during resistance welding. It is recommended to prevent burns by using electrodes with a wide contact surface, to raise the gripping effort, to carefully clean the surface of electrodes and rods, and to reduce the current density in these spots, which is possible by not only conducting current to the bottom electrodes but also to the upper hold-downs made from copper alloy. In view of the high sensitivity to heating time with butt welding, preheating should be carried out, (not too drastically) - e.g. continuous fusing is not premissible - for chilling in the heat-affected zone reduces strength through the formation of martensite spots (Fig. 3) which affects deformability and thus causes cracks. The formation of martensite can be prevented by heat treatment between the electrodes of resistance welding machines fitted with special automatic devices. [Abstracter's note: No details of such devices are mentioned]. The optimum welding process conditions were found in experiments in an АСИФ-75 (ASIF-75) welder with a recorder which enabled the duration and temperature of preheating, the magnitude of upsetting, the number of preheating cycles, and the total welding time to be determined. The optimum values of the following major parameters were determined: setting length $l_{УСТ}$,

S/125/60/000/012/004/014
A161/A030

Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinforced Concrete Structures

fusion length $l_{опл}$, and upsetting length $l_{ос}$, as well as the transformer stage. The optimum process was determined by the shape of the curves of breaking load, bending angle and impact strength in butt joints. For medium-diameter reinforcement rods the $\frac{l_{уст}}{d}$, $\frac{l_{опл}}{d}$ and $\frac{l_{ос}}{d}$ values must be 2.8; 0.7 and 0.35 respectively. Butt joints in 20 and 28 mm diameter rods were so welded in ASIF-75 and MCP-100 (MSR-100) welders. In spot welding of cross joints the weldability of 30KhG2S steel was much lower than of Ст.5 (St.5), and the highest possible mechanical strength was obtained with about 2 sec. holding (St.5 requires three times as much holding). With St.5 rods, spot welded connections can be obtained with mechanical strength not below the strength of the base metal, regardless of the transformer stage, but in 30KhG2S spot welds the strength can drop drastically and be very uneven. The cause is the presence of martensite and heterogeneous structure. The properties of cross joints can appearantly be improved by heat treatment in the welding machine (between electrodes) (Ref. 3) (A. Ya. Brodskiy, P.I. Sokolovskiy. A.M. Fridman, "Avtomaticheskaya svarka", No. 3, 1958). Conclusions: 1) Resistance welding with 30KhG2S reinforcement steel is more difficult than with other Soviet reinforcement steel grades, but butt joints

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A161/A030

Resistance Welding of 30KhG2S Reinforcement Steel for Pre-Stressed Reinfor ed Concrete Structures

are possible with ultimate strength not below the standard minimum for this steel. 2) Smooth Cr.3 (St.3) steel rods can be joined with 30KhG2S rods by spot welding into cross joints without weakening the rods. Cross joints of 30KhG2S with 30KhG2S have not more than 86% of initial metal strength before welding. 3) Brittleness is the drawback of all joints in 30KhG2S steel rods made by resistance welding, but it may be eliminated by heat treatment between electrodes. There are 6 figures and 3 Soviet references.

ASSOCIATIONS: TsNII stroitel'nykh konstruktsiy ASiA SSSR (TsNII of Construction Frameworks AS and A USSR). A.Ya. Brodskiy and A.M. Fridman; NII zhelezobeton pri Mosgorispolkome (Scientific Research Institute for Reinforced Concrete at Moscow City Executive Committee), Ye.Z. Yer-manok: MVTU imeni Baumana (MVTU imeni Bauman), S.A. Emelov

SUBMITTED: March 3, 1960

Card4/4

(IY) L 12911-66 EWI(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) JD/HM

ACC NR: AP6000953 SOURCE CODE: UR/0286/65/000/022/0010/0010

44,55 44,55 44,55 44,55

AUTHORS: Yermanok, Ye. Z.; Rodin, I. Z.; Shuvarikov, V. M.; Granovskiy, B. T.

ORG: none

4,44,55 44

TITLE: A method for contact arc welding of T-joints. Class 21, No. 176336 B

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 10

TOPIC TAGS: welding, welding electrode, welding equipment, welding technology, arc welding

ABSTRACT: This Author Certificate presents a method for arc welding T-joints, as between rods and plates. To facilitate the process and to improve the quality of the welded joint, the heading is produced in the course of welding with the help of an electrode provided with a groove.

SUB CODE: 13/ SUBM DATE: 15Jun63

Card 1/1 HW UDC: 621.791.763.1

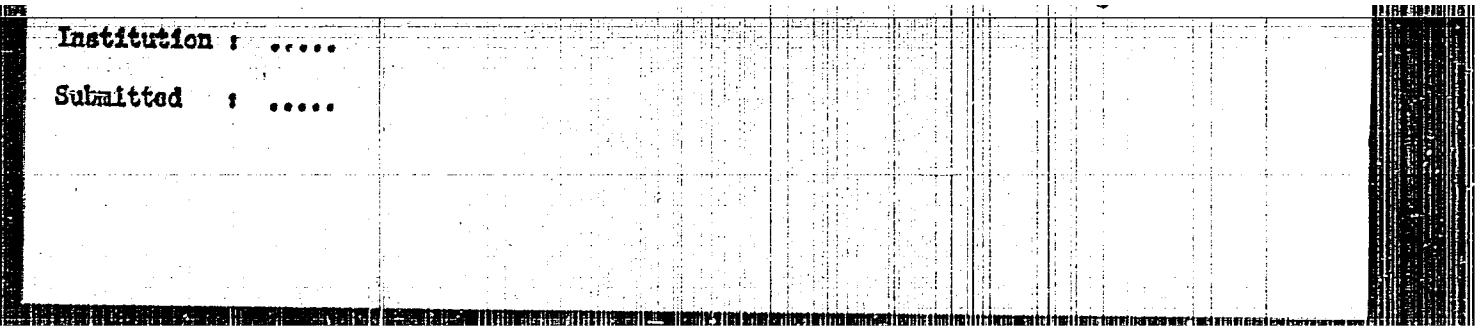
Card 1/1 Pub. 124 - 20/26

Authors : Pogodin, A. S., Eng.; Bulatov, N. I.; Yermanov, B. M., Eng.; and Burkov, V. I., Eng.

Title : Problems dealing with a non-mimeograph method of reproducing drawings

Periodical : Vest. mash. 35/6, 75 - 80, Jun 1955

Abstract : A series of letters submitted to the editor of this publication by readers



18(7) SOV/32-25-4-24/71

AUTHORS: Yermanovich, N. A., Longinov, M. F., Orlov, L. G., Utevskiy, L.M.

TITLE: Examination of Interdendritic Nonmetallic Streaks in Cast Steel (Obnaruzheniye mezhdendritnykh nemetallicheskikh prosloyek v litoy stali)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 440-442 (USSR)

ABSTRACT: Sites of fracture in some structural steels (40 KhNMA, 12Kh2N4A, 30KhVFYu, 30 KhGSA, 30 KhGSNA) pointed to a destruction of the metal along the boundary of the primary grain. On the strength of tests it is assumed that nitrides, especially aluminum nitride (I), accumulate at these boundaries and produce a weakening. This assumption was examined in the present case by means of an electron microscope and an electronograph. By an electrolytic heating, a thin coating layer was obtained at the site of fracture, which could be removed by the reagent according to Popova and examined. On the microphotograph of a fracture in the steel 40 KhNMA (Fig 1) one can well observe the inclusions, the forms of which are represented even better by the electron microscope (Fig 2). The phase composition of these inclusions was investigated by the X-ray structure- and electronographic method. In the X-ray picture (I) was observed in the

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Examination of Interdendritic Nonmetallic Streaks in Cast Steel

steel 38 KhVFYu (I), and (I) and VN in samples with big faults, (I) and $F_3Al_2(SiO_4)_3$ in the steel 12 Kh2N4A - (I), and (I) in the steel 40 KhNMA - (I). The electronograms (Fig 3 for 40KhNMA) corresponded to a crystal lattice of (I). In order to convert structural components from a disperse to a crystalline form, the samples were treated in the vacuum (at 800° for 2 hours); a fine formation of stains (Fig 4) was observed and the distinct electronogram of a polycrystal (Fig 5) was obtained with three phases - a spinel lattice, (I) and a phase which could not be identified. A test storing in the vacuum at room temperature for some days showed a crystallization, the electronogram of which is described (Table). There are 5 figures and 1 table.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod, Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Zlatoust Metallurgical Works, Central Scientific Research Institute of Iron Metallurgy)

18 (7)

AUTHORS: Longinov, M. F., Yermanovich, N. A. SOV/32-25-5-17/56

TITLE: Separation and Analysis of Steel Impurities (Razdeleniye i analiz vklyucheniy v stali)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 5, pp 571-573 (USSR)

ABSTRACT: A method is described, which allows a separation of the steel impurities (I) from the carbides (II) without a chemical treatment of the anode precipitate as well as a separation of (I) in individual phases for the X-ray structural and electronographic analysis. For this purpose the authors comminuted the anode precipitate soaked in alcohol with an electromagnetic vibrator (Fig 1) for 2-3 hours. The (II) whose dispersity is considerably higher remain dispersed and thus can be separated from the deposited (I). The ferromagnetic phase is then separated from (I) with a magnet and the other phases are separated according to the specific weight. The latter may take place mechanically with a special apparatus (Fig 2) on which the interaction between centrifugal force and gravity is made use of. To be true, this method does not allow the separation of (I) having a dispersion degree equal to that of (II). This, however, can be attained by a continuous

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decarbonization of steel up to a low carbon content, in which case the total carbon passes over into the solid solution during hardening of the sample and no (II) is formed. This decarbonization of the sample takes place in a closed tube (Fig 3) which is kept at 1150-1250° during 80-100 hours. In this way sulphides (CuS, MnS), oxides (MgO, Al_2O_3) nitrides (AlN, VN) could be determined in the steel 40 KhNMA. It was proven that at the grain boundaries in the steel 30 KhVFYu nitrides (AlN, VN) having a pink and blue coloring may be found. In steel 12 KhMF large amounts of copper sulphide steel impurities (Fig 4) were found and the angular c ystals observed in steel Kh 17 N 2 were identified as $MgAl_2O_3$ crystals. There are 4 figures.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod (Zlatoust Metallurgical Plant)

S/130/63/000/003/001/001
A006/A101

AUTHORS: Khasin, G. A., Yermanovich, N. A., Pribytkova, K. N.

TITLE: Improving the ductile properties of high-chromium steels

PERIODICAL: Metallurg, no. 3, 1963, 27 - 29

TEXT: The authors studied the effect of hot deformation temperature, cooling methods after rolling, and variants of heat treatment upon the ductile properties of high-chromium steels. Square and round specimens were subjected to the following variants of forging, heat treatment and cooling: preheating for forging from 1,000 - 1,200°C; forging completed at 700 - 940°C; heat treatment at 780 and 900°C during 4 hours; quenching in water and air. It was found that the ductility of steel, determined from the magnitude of contraction after forging, increased with lower forging temperatures. A considerable increase in ductility occurs when the temperature of completed forging is below 800°C. There was no marked difference between the properties of metals, cooled after forging in air, water and cinder. Heat treatment of forged metal at 780°C for 4 hours and cooling in water raises considerably the ductility of the steel and is re-

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S/130/63/000/003/001/001
A006/A101

Improving the ductile properties of high-chromium steels

commended for steels which do not possess the required ductile properties after forging and rolling. Changes in the microstructure, depending upon heat treatment conditions, were studied by heating square steel specimens to temperatures ranging from 700 - 1,100°C with different holding time, and cooling with the furnace, in air or in water. After heat treatment at over 800°C, the ductile properties of the steel remain low; they are normal at 780°C heating for 4 - 5 hours. There are 3 figures and 2 tables.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod (Zlatoust Metallurgical Plant)

Card 2/2

PERLIN, I.L.; OLEBOV, Yu.P.; YERMANYUK, M.Z.

Character of the dependence of the resistance to deformation on the degree of deformation in recrystallization processes following the pressure working of metals. Izv. vys. ucheb. zav.; tsvet. met. 7 no. 4:135-141 '64 (MIRA 19:1)

YERMASHEV, I.

Svet nad Kitayem (Light over China) Moskva, Izd-vo Molodaya Gvardiya, 1950
468 p. illus., ports.

YERMASHEV, I.

Tibet

New book about Tibet ("Tibet". B. V. Yusov. Reviewed by I Yermashev.) Vokrug sveta, no. 8 1952.

2

9. Monthly List of Russian Accessions, Library of Congress, November 1953, Uncl.

YERMASHEV, I.

Truth about new China ("In the country of Mao, Tse-tung." M.Man'ian. Reviewed by I.Ermashev). Vokrud sveta no.1:59-60 Ja '54. (MLRA 7:1)
(China--Description and travel) (Man'ian, M.)

MARKOV, M.M., kand.tekhn.nauk; TERENT'YEV, I.K., kand.tekhn.nauk; YERMASHOV, N.N., insh.

Some results of the experimental study of the effect of steam moisture on the characteristics of turbine stages. Izv. vys. uchseb. zav.; energ. 6 no.3:68-74 Mr '63. (MIRA 16:5)

1. Tsentral'nyy kotloturbinnyy institut imeni I.I.Polzunova. Predstavlena sektsiyey parovykh i gazovykh turbin.
(Steam turbines)

YERMASHOV, N.N., inzh.; MARKOV, N.M., doktor tekhn. nauk, prof.

Development of instruments for determining the degree of steam moisture. Izv. vys. ucheb. zav.; energ. 8 no.8:96-100 Ag '65. (MIRA 18:9)

1. TSentral'nyy kotloturbinnyy institut imeni I.I. Polzunova.

RYABTSEV, N., kand.tekhn.nauk; YERMASHOVA, Ye., inzh.

Using liquefied hydrocarbon gases for compensating daily and seasonal fluctuations and substituting other gases. Zhil.-kom. khoz. 8 no.1:12-15 '58. (MIRA 11:1)
(Gas distribution)

RYABTSEV, N.I.; YEREMASHOVA, Ye.M.

Problems of planning and installing reservoirs for liquefied hydrocarbon gases. Gaz. prom. 4 no.3:30-32 '59. (MIRA 12:5)

(Liquefied petroleum gas--Storage)

66473

SOV/20-129-1-19/64

~~21(8)~~ 5.4500(B)

AUTHORS: Starodubtsev, S. V., Academician, Academy of Sciences, UzbekskayaSSR, Ablyayev, Sh. A., Yermatov, S. Ye.

TITLE: Variation of Adsorptive Properties of Silicagel Under the Action of Gamma-irradiation

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 129, Nr 1, pp 72 - 73 (USSR)

ABSTRACT: Ionisation and excitation of atoms and molecules as well as displacement of the atoms is caused in solids under the action of penetrating rays. It becomes manifest by an external variation of the mechanical, optical, electrical, physico-chemical, and chemical properties of the bodies. Different preliminary works dealing with this subject are shortly reported. The properties of irradiated silicagel have hitherto been investigated only by A. N. Terenin et al (Refs 6,7). These authors irradiated silicagel by ultraviolet rays and showed, that a process occurs, similar to that on heat treatment, i. e. hydroxyl groups are separated and free valences occur at the surface. Present paper describes the experimental investigation of adsorptive properties,

Card 1/3

Variation of Adsorptive Properties of Silicagel Under the Action of Gamma-irradiation

basing on the adsorption of gases, measured by means of thermocouples and ionization manometers. Experimentally produced silicagels of the type KSK were used for this experiment. Prior to the investigation, these silicagels were subject to careful, long lasting heat treatment, and were then irradiated by γ-rays (dose rate 15.10^4 to 35.10^4 r/hour, total dosage $1.5.10^6$ to 2.10^6 r) in evacuated glas tubes (which were provided with manometer tubes). The following is shown by the results of these investigations: The adsorptive power of silicagel increases remarkably under the influence of γ-rays, and the amount of the gas, adsorbed by the irradiated silicagel increases up to a known boundary value, with increasing irradiation dose. The first diagram shows the change of the adsorptive properties of silicagel with respect to H_2, N_2 and Ar at low pressures, and the second diagram shows the same for CO_2, CO, NH_3, C_2H_4 and H_2S, under the condition, that pressures of $1 - 10^{-1}$ torr prevailed before the irradiation. According to these diagrams, the adsorptive power of the irradiated silicagel samples increases differently for different gases.

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66473

Variation of Adsorptive Properties of Silicagel Under the Action of Gamma-irradiation SOV/20-129-1-19/64

At comparatively high gas pressures (4 torr) the irradiated silicagel can adsorb an amount of hydrogen of $2.5.10^{-5}$ of its total weight. In this experiment, it is important and interesting, that silicagel assumes its previous properties, if heated to 100^{0}. At room temperature, almost no such "annealing" of the irradiation effect may be noticed. Obviously, the changes of the adsorptive properties of silicagel under irradiation with γ-rays may be explained by the separation of hydroxyl groups and the formation of free valences at the surface as well as by the interruption of the bonds between the free radicals (which were formed during the primary heat treatment) and by the high ionization of the gas (the adsorbate), effecting an increase of the adsorptive power of silicagel. There are 3 figures and 7 references, 6 of which are Soviet.

SUBMITTED: June 9, 1959

4

Card 3/3

33100
S/638/61/001/000/025/056
B104/B138

S.4600

AUTHORS: Ablyayev, Sh. A., Yermatov, S. Ye., Starodubtsev, S. V.

TITLE: Variation in adsorption properties of silica gel during gamma irradiation

SOURCE: Tashkentskaya konferentsiya po mirnomy ispol'zovaniyu atomnoy energii. Tashkent, 1959. Trudy, v. 1. Tashkent, 1961, 174 - 177

TEXT: The adsorption properties of industrial KCK (KSK) silica gel were determined from the amount of gas absorbed, and by measurements with thermocouple and ionization manometers. Before the experiments, the samples were carefully heat-treated, sealed in evacuated ampoules, and exposed to gamma rays. Radiation dose was 150 - 350,000 r/hr reaching a total of up to 2 million r. The adsorption properties of silica gel increase considerably during irradiation, and differ for different gases. Some gases, such as argon or hydrogen sulfide, are hardly adsorbed at all. Amounts of gas additionally adsorbed during irradiation:

Card 1/3

Variation in adsorption...

Gas	Additionally adsorbed gas amount, moles/g
Hydrogen	12
Nitrogen	8
Carbon dioxide	18
Ammonia gas	1
Ethylene	0.5

When the silica gel is heated to 100°C, its properties return to their initial state, i.e. annealing occurs. The increase in adsorption power remains practically constant at room temperature. The lower the temperature (down to -150°C), the more rapid the adsorption process. The adsorption power of silica gel increases with decreasing temperature, but the increase is greater during gamma irradiation. Results are explained as follows: (1) The hydroxyl group is destroyed by irradiation, and free valences are formed; (2) electrically charged active centers are formed; (3) the bonds between free radicals are ruptured. A. N. Terenin et al. (DAN SSSR, 66, 885, 1949) are mentioned. There are 3 figures, 1 table, and 6 references: 5 Soviet and 1 non-Soviet.

Card 2/3

33100
S/638/61/001/000/025/056
B104/B138

Variation in adsorption...

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzSSR (Physicotechnical Institute AS Uzbekskaya SSR)

Card 3/3

S/166/60/000/006/008/008
C111/C222

AUTHORS: Ablyayev, Sh.A., Yermatov, S.Ye. and Starodubtsev, S.V., Academician of the Academy of Sciences Uzbekskaya SSR.

TITLE: The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1960, No. 6, pp. 93 - 95

TEXT: In (Ref. 1) the authors showed that the adsorption properties of silica gel are changed essentially by γ - rays Co^{60}. The present paper is a continuation of (Ref. 1). The authors investigate the adsorption properties of the types КСК(KSK) and АСМ(ASM) of the silica gel and of the alumosilicates. It was stated that the adsorbing capacity of the alumosilicates after a γ - radiation increases somewhat and the adsorbing capacity of the silica gel increases strongly.

Card 1/ 4

S/166/60/000/006/008/008
C111/C222

The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

Fig. 1

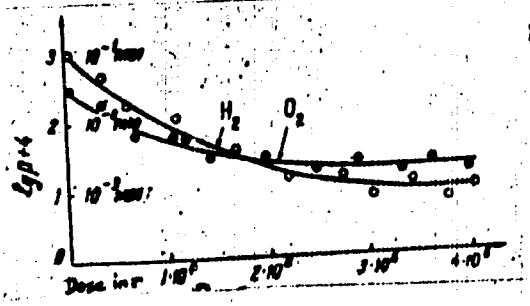

Fig. 1 : Change of the adsorbing capacity of the alumosilicates under the influence of γ - radiation.

Furthermore it was stated that for low temperatures of the tests the adsorption process is quicker.

Card 2/4

S/166/60/000/006/008/008
C111/C222

The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

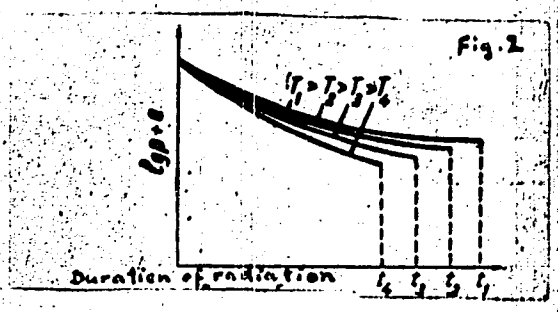

Fig. 2 : Influence of the temperature of the radiation to the velocity of the adsorption process.

The isothermal lines of the adsorption of the considered silica gel were obtained for two gases (H_2 and O_2) for room temperature and for the temperature of fluid nitrogen.
The discovered properties were used in order to construct a thermos bottle
Card 3/4

S/166/60/000/006/008/008
C111/C222

The Influence of the Gamma Radiation to the Adsorption Properties of Vacuum Materials

which contained silica gel between the walls and which was submitted to γ- radiation ; thereby it was reached that the velocity of cooling of the content was diminished essentially.
There are 6 figures and 1 Soviet reference.

[Abstracter's note : (Ref. 1) is a paper of the authors in Doklady Akademii nauk SSSR, 1959, Vol. 129, p. 72]

ASSOCIATION: Fiziko-Tekhnicheskiy institut AN Us SSR
(Physicotechnical Institute of the Academy of Sciences Usbekskaya SSR)

SUBMITTED: August 29, 1960

Card 4/4

YERMATOV, S. Ye. CAND PHYS-MATH SCI, "CHANGES IN THE ADSORPTION PROPERTIES OF SILICA GEL UNDER [redacted] GAMMA-RAYS." TASHKENT, 1961. (ACAD SCI UZSSR. PHYS-TECH INSTITUTE). (KL-DV, 11-61, 208).

S/844/62/000/000/119/129
D207/D307

AUTHORS: Starodubtsev, S. V., Ablyayev, Sh. A., Vasil'yeva, Ye. K. and Yermatov, S. Ye.

TITLE: Effect of γ radiation on adsorption properties of silica gels

SOURCE: Trudy II Vsesoyuznogo soveshchaniy po radiatsionnoy khimii. Ed. by L. S. Polak. Moscow, Izd-vo AN SSSR, 1962, 689-692

TEXT: Factory-made silica gel of КСК (KSK) grade was heat-treated in evacuated ampoules and then subjected to γ rays at dose rates up to 340,000 r/hour. Adsorption was then investigated by admitting a gas or vapor to the ampoules held at temperatures from +20°C to liquid-nitrogen temperature. On cooling, the adsorption ability of silica gel increased even without irradiation, but γ rays intensified this increase. The amount of oxygen adsorbed rose linearly with pressure of the admitted gas or vapor in unirradiated and irradiated silica gel, indicating the same nature of adsorption cen-

Card 1/2

ters in both cases. The silica gel surface became saturated with adsorption centers at doses of 2 - 3 x 10^6 r. Gamma irradiation raised the amount of heptane vapor that could be adsorbed on silica gel (this effect was smaller than for the majority of gases) but made no difference to the adsorption of benzene vapor. Irradiation of aqueous solutions of ammines of the $[Co(NH_3)_6]Cl_3$ type in direct contact with silica gel raised the amount of liquid adsorbed because of radiation-induced chemical reactions in the solutions rather than due to changes on the silica gel surface. Gamma-irradiation raised also the amounts of oxygen and hydrogen that could be adsorbed by aluminosilica gel. A practical application of these observations consisted of placing γ activated silica gel between the walls of a thermos flask. This improved the vacuum between these walls, by adsorbing more gas than unirradiated silica gel, and thus reduced heat transmsiion through the walls. Such thermos flasks were prepared at the Ashkhabadskiy stekol'nyy kombinat im. V. I. Lenina (Ashkhabad Glass Combine im. V. I. Lenin). There are 7 figures.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN UzbSSR (Physico-Technical Institute AS UzSSR)

YEMANOV, S. TE.

90

SOV/6176

PHASE I BOOK EXPLOITATION

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences USSR, Resp. Ed.

Deystviye yadernykh izlucheniy na materialy (The Effect of Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR, 1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: Z. A. Adasinskiy; Editorial Board: P. L. Grusin, G. V. Kurdyumov, B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. P. Pravdyuk; Ed. of Publishing House: N. G. Makarenko; Tech. Eds: T. V. Polyakova and I. M. Dorokhina.

Card 1/14

90

SOV/6176

The Effect of Nuclear Radiation (Cont.)

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research orginization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense Y-radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

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5

The Effect of Nuclear Radiation (Cont.) SOV/5176

Starodubtsev, S. V., M. M. Usmanova, and V. M. Mikhaelyan. Change in Certain Electrical Properties of Boron and Amorphous Selenium Under the Action of γ-Irradiation 355

Starodubtsev, S. V., and Sh. A. Vakhidov. Luminescence of Crystalline Quartz Subjected to UV- and γ-Rays 362

Starodubtsev, S. V., Sh. A. Ablyazov, and S. Ye. Yermatov. Effect of γ-Ray Flux on Absorption Properties of Vacuum Materials 366
Change in absorptive properties of various silica gels and alumosilicates, subjected to γ-ray doses of 150,000 to 350,000 r/h, were investigated.

Trinkler, E. I. Effect of γ-Irradiation on Permeability of Some Ferrites 370

Strel'nikov, P. I., A. I. Fedorenko, and A. P. Klyucharev. Effect of Proton Irradiation on Microhardness of Iron and Steel 374

Card 13/14

ACCESSION NR: AT3007248 S/2952/63/000/000/0011/0018

AUTHORS: Starodubtsev, E.S.V.; Ablyayev, Sh.A.; Yermatov, S.Ye.; Pulatov, U.U.

TITLE: Changes in adsorptivities of silicagels and zeolites under the action of high-frequency discharges

SOURCE: Radiatsion. effekty* v tverd. telakh. Tashkent, Izd-vo AN UzbSSR, 1963, 11-18

TOPIC TAGS: adsorption, adsorptivity, silicagel, zeolite, electric discharge, slow electron, gamma ray, cosmic radiation, temperature effect, isotherm, high-frequency discharge

ABSTRACT: The paper reports the basic results of an experimental investigation of the effect of fluxes of slow electrons on the adsorption properties of synthetic zeolites and silicagels. Test objects were: Silicagel Mark KSK and synthetic zeolites of the types 4Å (NaA) Gor'kovskoye, CaA 5Å Gor'kovskoye, 13x(Nax) Gor'kovskoye, 4Å (NaA) Groznoye, and CaA 5Å Groznoye. High-frequency electric discharges served as slow-electron sources. The changes in the adsorptional properties were investigated experimentally by the adsorption of gases by adsorbents measured by manometric tubes. The specimen adsorbent, contained in a glass ampoule (A), is

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ACCESSION NR: AT3007248

first heated to 350-400°C under continuous evacuation. The A is then filled with the test gas from a reservoir V, following the evacuation of the air from the entire system down to 10^{-3} to 10^{-4} mm Hg. The gas is permitted to enter the adsorbent container A up to a specified pressure, whereupon A is soldered tight and thus cut off from the vacuum equipment and held at room temperature until the establishment of an equilibrium pressure, which is of the order of 10^{-1} mm Hg. The instrument is then exposed to the action of the high-frequency discharges. Zeolites: Test results, plotted in the form of curves, show that all types of zeolites gain in adsorptional capacity under the effect of slow electrons. These changes increase with increasing irradiation time up to a specified limit and then achieve saturation after about 6 to 10 min. Optimal results were obtained with the Gor'kovskoye zeolites of the types 13x(Nax) and CaA 5Å. Isotherms of ordinary and induced adsorption of zeolites with reference to dry air at temperatures of 20 and -196°C were derived. Silicagels: Exposure to the discharges increased the adsorptivity of silicagel substantially. Saturation at any given oscillatory power was achieved after 8-15 minutes. Isotherms of ordinary and induced adsorption of silicagel with respect to dry air in the 10^{-1} to 10^{-3}-mm-Hg range were obtained at temperatures of 0, +30, +60, and -196°C. Adsorbent temperature exerted a noticeable effect on the magnitude of both ordinary and induced adsorption. The adsorptivity of silicagel and zeolites increases with decreasing temperatures even without irradiation.

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ACCESSION NR: AT3007248

However, the changes are substantially greater under irradiation, and the adsorption is much more permanent. The effect of lower temperatures is stronger on zeolites than on silicagels. Some light is shed on the effect of slow electrons and gamma-ray radiational effects on the surface layer and into the depth of an adsorbent. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 14Oct63 ENCL: 00

SUB CODE: PH, EE, MA NO REF SOV: 006 OTHER: 000

Card 3/3

ACCESSION NR: AT3007249 S/2952/63/000/000/0019/0021

AUTHORS: Starodubtsev, S. V.; Ablyayev, Sh. A.; Yermatov, S. Ye; Azizov, S. A.

TITLE: Effect of gamma radiation on the adsorptional properties of synthetic zeolites.

SOURCE: Radiatsion. effekty* v tverd. telakh. Tashkent, Izd-vo AN UabSSR, 1963, [illegible] 19-21

TOPIC TAGS: adsorption, ordinary adsorption, supplementary adsorption, radiation-induced adsorption, zeolite, gamma ray, gamma-ray-induced adsorption, radiation, gamma radiation, temperature effect, isotherm

ABSTRACT: The paper describes an experimental investigation of the effect of gamma rays on the adsorptivity of synthetic zeolites. The tests were performed by the ordinary volumetric method on 3 Gor'kovskoye specimens of the types 4A (NaA), CaA 5A, and 13x (Nax), and two Groznoye specimens 4A (NaA) and CaA 5A. The zeolite specimens were first heat-treated thoroughly at temperatures of 350-400°C at pressures between 10^{-1} and 10^{-6} mm Hg for several hours. The zeolites were then exposed to gamma rays of a radiation dosage rate of 150 to 350,000 r/hr, with a total dose of 2 to $3 \cdot 10^6$ r. The adsorptivity of the zeolites was found to be

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ACCESSION NR: AT3007249

significantly increased; the increase grew to a certain limit depending on the intensity of the radiation dose. The effect of the glass on the test results was determined by identical control ampoules with O and H, with and without adsorbents, exposed to gamma radiation. It was found that the ampoules not containing adsorbents maintained a constant gas pressure. Therefore, the effect of the glass was found to be nil. It was found that the adsorption temperature affects the magnitude of the gamma-ray effect substantially. The radiational effect decreases at elevated temperatures, that is, a radiational anneal occurs. The effect disappears completely at 300-400°C. It is noted that following an anneal the limiting pressure occurs at lower values of the radiational dose. Comparative isotherms of supplementary and ordinary adsorption of an irradiated zeolite were plotted for dry air at −196° and at room temperature. The nature of the radiation effect observed is explained by the knocking out of a Compton electron by a primary gamma quantum, whereupon the fast electrons pass along a path of 2-3 mm within the zeolite. Having expended their energy on the ionization of the matter, they form a large number of relatively slow electrons with energies of the order of tens of ev. The resulting strong ionization forms negative and positive ions which produce excitations and other defects of various kind. The number of possible defects per gamma quantum ordinarily amounts to several tens of thousands; these defects do not differ from those obtainable by UV and X-ray impingement. The supplementary

Card 2/3

ACCESSION NR: AT3007249

adsorption of gases on the zeolites occurs in such defects. Orig. art. has: 3 figs.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 14Oct63 ENCL: 00

SUB CODE: MA, PA, EE, CH NO REF SOV: 005 OTHER: 000

Card 3/3

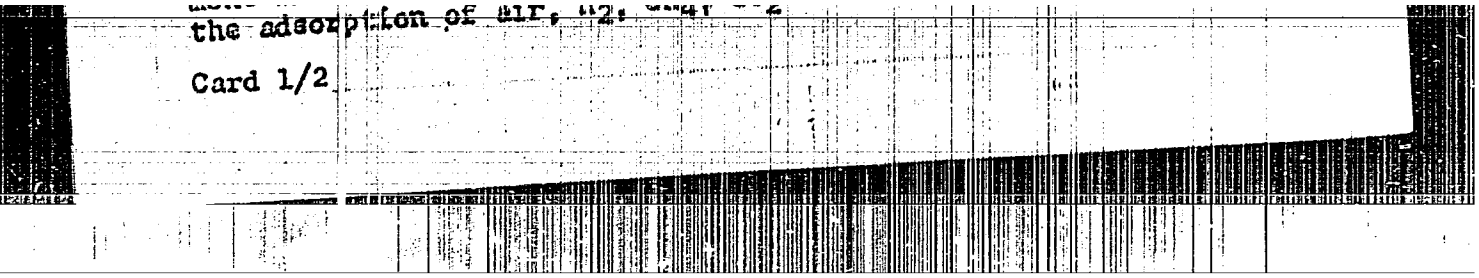
S/109/63/008/002/019/028
D413/D308

AUTHORS: Starodubtsev, S.V., Ablyayev, Sh.A., Yermatov, S.Ye. and Pulatov, U.

TITLE: The effect of radio-frequency discharges on the adsorption properties of silica gel

PERIODICAL: Radiotekhnika i elektronika, v. 8, no. 2, 1963, 328-330

TEXT: The authors have earlier (Dokl. AN SSSR, v. 129, no. 1, 1959, 72; Izv. AN UzSSR, Ser. fiz.-mat. nauk, no. 6, 1960, [illegible] radiation in enhancing the adsorp-



The effect of radio-frequency ...

times was measured by manometer tubes. The resulting curves show increases in adsorption closely similar to those obtained by the action of γ-radiation, ranging from zero for He to a saturation value of 0.4 μ mole g^{-1} for H_2. The induced adsorption disappears completely on baking at 350°C. Isotherms are also given for the induced adsorption of dry air at 0°, 30° and 60°C over the range

ica-gel. There are 3 figures.

SUBMITTED: March 19, 1962

Card 2/2

STARODUBTSEV, S.V., akademik; ABLYAYEV, Sh.A.; YERMATOV, S.Ye.; FULATOV, U.U.

Change in the adsorbing capacity of silica gel induced by high-frequency discharges. Izv. AN Uz. SSR. Ser. fiz.-mat. nauk no.6:77-78 '61. (MIRA 16:12)

1. Fiziko-tekhnicheskiy institut AN UzSSR. 2. Akademiya nauk UzSSR (for Starodubtsev).

L 2442-66 EWT(m)/EPF(c)/EPF(n)-2/EWP(t)/EWT(b) LJP(c) JD/GG/GF
ACCESSION NR: AT5023820 UR/0000/62/000/000/0366/0369

AUTHOR: Stardubtsev, S. V.; Ablyayev, Sh. A.; Yermatov, S. Ye.

TITLE: Effect of gamma fluxes on the adsorptive properties of vacuum materials

SOURCE: Soveshchaniye po probleme Deyatviye yadernykh izluchenly na materialy. Moscow, 1960. Deyatviye yadernykh izluchenly na materialy (The effect of nuclear radiation on materials); doklady soveshchaniya. Moscow, Izd-vo AN SSSR, 1962, 366-369

TOPIC TAGS: silica gel, aluminum silicate, gamma irradiation, irradiation effect, gas adsorption

ABSTRACT: The article continues the study of X-ray-induced changes in the adsorptive properties of KSK and ASM silica gels and plant-produced aluminosilicates. Oxygen and hydrogen were used as the adsorbed gases, and the radiation dose rate was (150-350) 10^3 r/hr. All the results showed an increase in adsorptive capacity that was much more pronounced in silica gels than in aluminosilicates. The temperature dependence of this radiation effect was investigated between +100 and -130C, and the adsorptive capacity was found to increase with decreasing temperature (this increase was much greater than that of nonirradiated samples). The adsorption isotherms were found to be linear both at room temperature and at the

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L 2442-66
ACCESSION NR: AT5023820

liquid nitrogen temperature. Curves of the time dependence of the adsorption showed that equilibrium pressure is established after a certain time interval, i.e., the adsorption is not instantaneous. The data indicate that to a first approximation the additional active adsorption centers produced by the γ rays obey the same laws as ordinary centers on silica gel. The property of silica gels to thus increase their adsorptive capacity was utilized for the creation of a greater vacuum in Dewar flasks and thermos bottles. Tests showed that the rate of cooling of hot water in pre-irradiated thermos bottles containing a silica gel compartment was slower, and after 20 hr. the temperature of the water was 5 to 8° higher than in nonirradiated bottles. Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 18Aug62 ENCL: 00 SUB CODE: NP, MT

NO REF SOV: 001 OTHER: 000

BVK
Card 2/2

ACC NR: AP7004640 SOURCE CODE: UR/0288/66/000/003/0104/0105

AUTHOR: Umarov, G. Ya.; Lyutovich, A. S.; Yermatov, S. Ye.; Karimov, F. R.

ORG: Physico-technical Institute, AN UzSSR, Tashkent (Fiziko-tekhnicheskiy institut AN UzSSR)

TITLE: The possibility of obtaining semiconductor and difficultly fusible materials with the aid of a jet discharge

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya tekhnicheskikh nauk, no. 3, 1966, 104-105

TOPIC TAGS: thermal reactor, oxidation reduction reaction, gas discharge, high frequency discharge, metal oxide, water cooled nuclear reactor

ABSTRACT: A gas discharge setup (see Fig. 1) is described for deoxidizing such materials as silicon oxide and metallic oxides. The discharge in this water-cooled quartz reactor is maintained by 10-kw, 25-Mc, rf energy source and the raw materials are $SiCl_4$ and MoO_3. The reactor is 75 cm long and 20 cm in diameter. When molybdenum oxide is being reduced cooling is not necessary. The discharge is started at silicon electrode progressing to the surrounding mixture of hydrogen and silicon tetrachloride. When molybdenum oxide is being reduced the electrode is made of molybdenum. Under normal conditions to reduce molybdenum trioxide to dioxide state

Card 1/2 UDC: 621.315.592+669.018.45+669.094.1

ACC NR: AP7004640

at 700C it is necessary to maintain the discharge for 2--3 hr. In this setup, however, after 5--7 min of deoxidation the oxygen content is reduced by 25%. Silicon powder is collected on the walls of the quartz tube during discharge. When hydrogen flow is 20 liter/min and that silicon tetrachloride is 200 ml/hr, 40% of applied silicon is collected on the tube walls. Orig. art. has: 1 figure and 1 table.

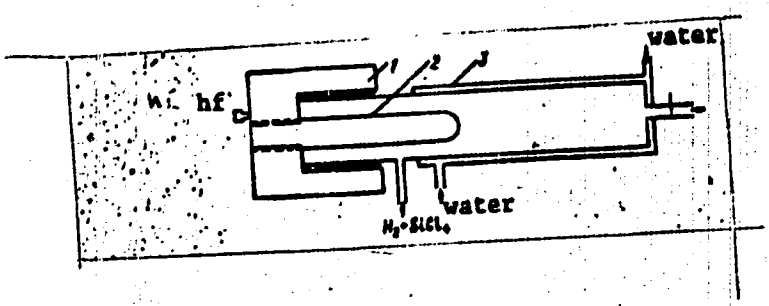

Fig. 1. Quartz reactor
1 - base, 2 - electrode, 3 - quartz reactor

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 001

Card 2/2

SOKOLOV, N.V., kand. tekhn. nauk; BURKOV, G.G., inzh.; KRASIL'NIKOV, L.A., inzh.; GOLOMAZOV, V.A., inzh.; BOBYLEVA, S.F.; LYSKOV, I.K.; Prinimali uchastiye: BREZHNEV, I.S.; SHCHETKIN, L.I.; YERMAYSKAYA, A.M.; ANDRIANOVA, A.L.; SILANT'YEV, L.A.; NADEZHDINA, A.A.; LAKHMOSTOVA, F.S.; DEMENT'YEV, V.F.

Improvement of the processes of manufacturing high-strength, steel brass plated wire. Stal' 24 no.8:756-759 Ag '64. (MIRA 17:9)

1. Beloretskiy staleprovolochno-kanatnyy zavod.

L 27512-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG/GS

ACC NR: AT6012372 SOURCE CODE: UR/0000/65/000/000/0075/0081

AUTHORS: Tret'yachenko, L. A.; Yeremenko, V. N.

ORG: none

TITLE: Phase equilibria in the system Ti--V--C at 1450, 1600, and 1800C

SOURCE: Soveshchaniye po metallokhimii, metallovedeniyu i primeneniyu titana i yego splavov, 6th. Novyye issledovaniya titanovykh splavov (New research on titanium alloys); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1965, 75-81

TOPIC TAGS: titanium, vanadium, carbon, alloy phase diagram, phase composition

ABSTRACT: Phase diagrams for the system Ti--V--C at 1450, 1600, and 1800C were derived (see Fig. 1). The investigation supplements the results of V. N. Yeremenko (Titan i yego splavy. Kiyev, Izd-vo AN UkrSSR, 1961). Microstructure photographs of the specimens are presented. The phase composition was determined by x-ray spectroscopy. The results of x-ray analysis, microhardness, and change in the lattice parameters are in good agreement with the phase boundaries of the phase diagrams.

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L 27512-66
ACC NR: AT6012372

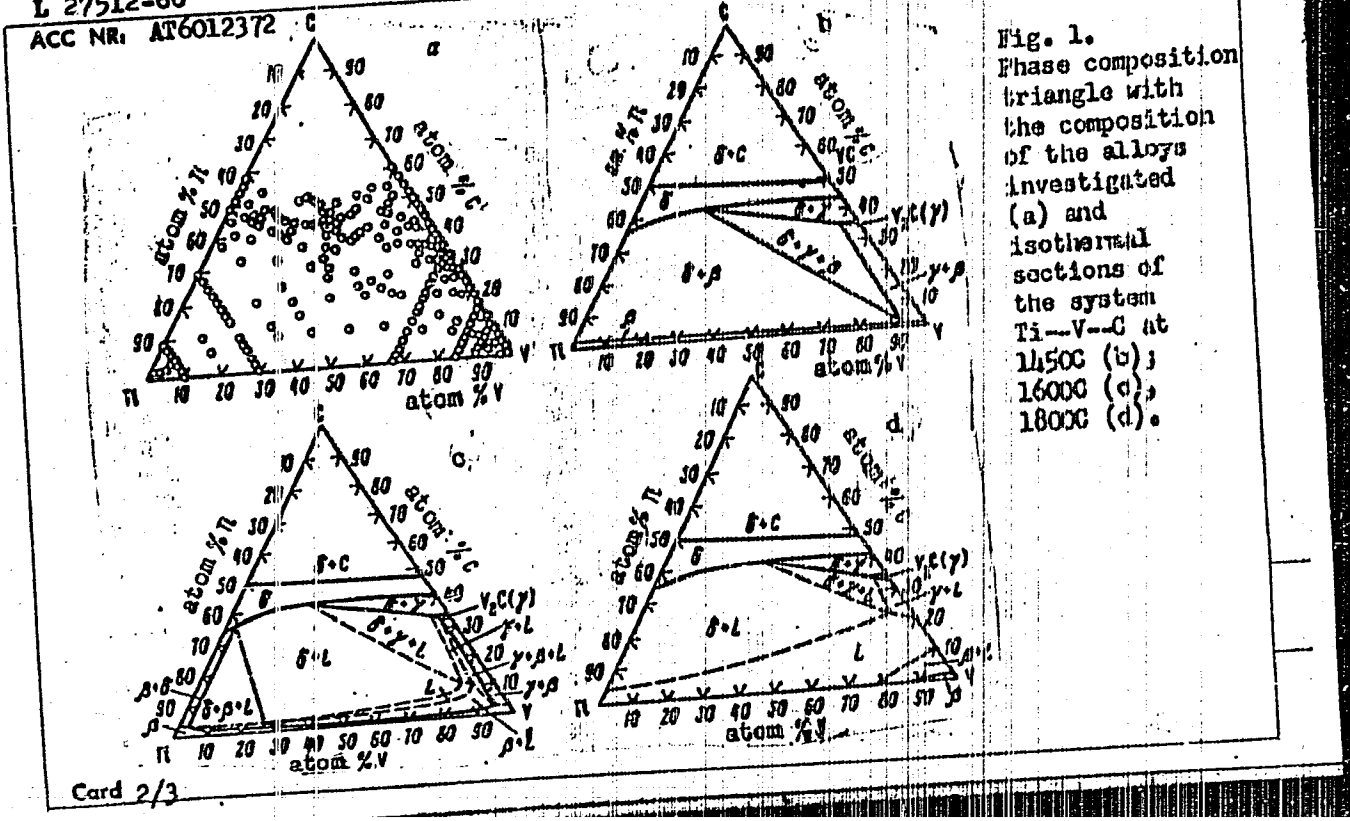

Fig. 1. Phase composition triangle with the composition of the alloys investigated (a) and isothermal sections of the system Ti—V—C at 1450C (b); 1600C (c), 1800C (d).

Card 2/3

L 27512-66
ACC NR: AT6012372

Orig. art. has: 1 table and 5 figures.

SUB CODE: 11/ SUBM DATE: 02Dec65/ ORIG REF: 009/ OTH REF: 014

Card 3/3 BKG

YERMEKOV, M.A.

Some features of the changes in gas content of the Karaganda Basin coal layers. Vest. AN Kazakh. SSR 13 no.3:41-52 Mr '57. (MLRA 10:6)
(Karaganda Basin--Gas, Natural)

Yermekov, M.A.

YERMEKOV, M.A.

Results of a comparative test of apparatus used in determining the gas resources of coal layers. Vest. AN Kazakh. SSR 13 no.12:83-84 D '57. (MIRA 11:1)

(Gas, Natural) (Prospecting)

YERMEKOV, M. A., Cand Geol-Min Sci -- (diss) "Methods of studying the gas-bearing capacity of the coal-bearing deposits of Karaganda basin in the process of geological prospecting operations based on the example of Churubay-Nurinskiy Rayon."

Alma-Ata, 1958. 12 pp (Min of Higher Education USSR, Kazakh Mining and Metallurgical Inst), 150 copies (KL, 35-58, 106)

YERMEKOV, M.A., kand.geologo-mineralogicheskikh nauk

Determination of the natural gas potential of coal measures in exploration boreholes by the KG-55 core gas sampler. Sbor. nauch.trud.KazGMI no.18[illegible]208-213 '59. (MIRA 15:2)
(Gas, Natural)

YERMEKOV, M.A. [IEmekov, M.A.], dotsent

Colorimetric determination of phosphorus in acid soil extracts by vanadate-molybdate method. Nauk. pratsi UASHN 17 no.12:163-166 '60. (MIRA 16:7)

(Soils--Phosphorus content)

YERMEKOV, M.A., kand. geologo-mineralogicheskikh nauk

Establishing the regular pattern of changes with depth in the gas pressure of an intact massif. Vest. AN Kazakh. SSR 18 no.5: 78-80 My '62. (MIRA 17:10)

YERMEKOV, M.A.

Applying the theory of probabilities to the analysis of the density of the pattern of test holes by the conditional spacing method. Izv.AN Kazakh.SSR. Ser.geol. no.5:91-101 '62. (MIRA 15:12)
(Prospecting)

YERMEKOV, M.A.

Methods for the determination of methane potential in coal deposits. Izv. AN Kazakh. SSR. Ser. geol. 22 no.4:53-59 Jl-Ag '65. (MIRA 18:9)

1. Institut geologicheskikh nauk im. K.I.Satpayeva, g. Alma-Ata.

YELEMANOV, A.Ye.; YEZHKOV, M.A.

[Sheep breeding] Ovtsevodstvo. Alma-Ata, Kazakhskoe gos. izd-vo, 1954. 319 p. (MLRA 9:12)
(Sheep breeding)

YERMEKOV, M.A. (Alma-Ata); GLADKOV, P.F. (Alma-Ata)

Vitality and adaptability of animals. Agrobiologiia no.4:584-587 Jl-Ag '62. (MIRA 15:9)

(KAZAKHSTAN--SHEEP BREEDING)

YERMEKOV, M.A., zasluzhennyy deyatel' nauki Kazakhskoy SSR; GLADKOV, P.F., mladshiy nauchnyy sotrudnik; CHUMIN, N.P., mladshiy nauchnyy sotrudnik

Fat-tailed sheep of central Zazakhstan. Zhivotnovodstvo 24 no.9:61-67 S '62. (MIRA 15:12)

1. Kazakhskiy nauchno-issledovatel'skiy institut zhivotnovodstwa.
(Kazakhstan—Sheep breeds)